

# Sequence Listing

- <110> Ashkenazi, Avi J.  
 Baker, Kevin P.  
 Botstein, David  
 Desnoyers, Luc  
 Eaton, Dan L.  
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 Fong, Sherman  
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 Gerritsen, Mary E.  
 Goddard, Audrey  
 Godowski, Paul J.  
 Grimaldi, J. Christopher  
 Gurney, Austin L.  
 Kljavin, Ivar J.  
 Napier, Mary A.  
 Pan, James  
 Paoni, Nicholas F.  
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 Stewart, Timothy A.  
 Tumas, Daniel  
 Watanabe, Colin K.  
 Williams, P. Mickey  
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 Zhang, Zemin
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tcctggaagg aattctctga tttcatgaag tgggccatcc ctgcctttct 500  
 ttatttcctg gataacttga ttgtcttcta tgtcctgtcc tatcttcaac 550  
 cagccatggc tgttatcttc tcaaatttta gcattataac aacagctctt 600  
 ctattcagga tagtgctgaa gaggcgtcta aactggatcc agtgggcttc 650  
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 ctttacagca caacttggca ggacgtggat ttcacacga tgcctttttc 750  
 agcccttcca attcctgcct tcttttcaga agtgagtgtc ccagaaaaga 800  
 caattgtaca gcaaaggaat ggacttttcc tgaagctaaa tggaacacca 850  
 cagccagagt tttcagtcac atccgtcttg gcatgggcca tgttcttatt 900  
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 aactctatth ctttggcatt ctgtttaatg ggctgactct gggccttcag 1050  
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 caggccctcc ctggaatttt tcttggagc cccatcagtc cttctctcta 1300  
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 cttattttca catthtcagt gtttgaata tttatctttt cactttgata 1550  
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 acagtgtctac ttcacactta aaagtgcacg gtattttttca tgggtattttg 2550  
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<210> 14  
 <211> 424  
 <212> PRT  
 <213> Homo sapiens

<400> 14  
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 Thr Met Tyr Thr Phe Leu Leu Gly Ala Ile Phe Ile Ala Leu Ser  
 20 25 30  
 Ser Ser Arg Ile Leu Leu Val Lys Tyr Ser Ala Asn Glu Glu Asn  
 35 40 45  
 Lys Tyr Asp Tyr Leu Pro Thr Thr Val Asn Val Cys Ser Glu Leu  
 50 55 60  
 Val Lys Leu Val Phe Cys Val Leu Val Ser Phe Cys Val Ile Lys  
 65 70 75  
 Lys Asp His Gln Ser Arg Asn Leu Lys Tyr Ala Ser Trp Lys Glu  
 80 85 90  
 Phe Ser Asp Phe Met Lys Trp Ser Ile Pro Ala Phe Leu Tyr Phe  
 95 100 105  
 Leu Asp Asn Leu Ile Val Phe Tyr Val Leu Ser Tyr Leu Gln Pro  
 110 115 120

|                 |                     |                     |     |
|-----------------|---------------------|---------------------|-----|
| Ala Met Ala Val | Ile Phe Ser Asn Phe | Ser Ile Ile Thr Thr | Ala |
| 125             |                     | 130                 | 135 |
| Leu Leu Phe Arg | Ile Val Leu Lys Arg | Arg Leu Asn Trp Ile | Gln |
| 140             |                     | 145                 | 150 |
| Trp Ala Ser Leu | Leu Thr Leu Phe Leu | Ser Ile Val Ala Leu | Thr |
| 155             |                     | 160                 | 165 |
| Ala Gly Thr Lys | Thr Leu Gln His Asn | Leu Ala Gly Arg Gly | Phe |
| 170             |                     | 175                 | 180 |
| His His Asp Ala | Phe Phe Ser Pro Ser | Asn Ser Cys Leu Leu | Phe |
| 185             |                     | 190                 | 195 |
| Arg Ser Glu Cys | Pro Arg Lys Asp Asn | Cys Thr Ala Lys Glu | Trp |
| 200             |                     | 205                 | 210 |
| Thr Phe Pro Glu | Ala Lys Trp Asn Thr | Thr Ala Arg Val Phe | Ser |
| 215             |                     | 220                 | 225 |
| His Ile Arg Leu | Gly Met Gly His Val | Leu Ile Ile Val Gln | Cys |
| 230             |                     | 235                 | 240 |
| Phe Ile Ser Ser | Met Ala Asn Ile Tyr | Asn Glu Lys Ile Leu | Lys |
| 245             |                     | 250                 | 255 |
| Glu Gly Asn Gln | Leu Thr Glu Ser Ile | Phe Ile Gln Asn Ser | Lys |
| 260             |                     | 265                 | 270 |
| Leu Tyr Phe Phe | Gly Ile Leu Phe Asn | Gly Leu Thr Leu Gly | Leu |
| 275             |                     | 280                 | 285 |
| Gln Arg Ser Asn | Arg Asp Gln Ile Lys | Asn Cys Gly Phe Phe | Tyr |
| 290             |                     | 295                 | 300 |
| Gly His Ser Ala | Phe Ser Val Ala Leu | Ile Phe Val Thr Ala | Phe |
| 305             |                     | 310                 | 315 |
| Gln Gly Leu Ser | Val Ala Phe Ile Leu | Lys Phe Leu Asp Asn | Met |
| 320             |                     | 325                 | 330 |
| Phe His Val Leu | Met Ala Gln Val Thr | Thr Val Ile Ile Thr | Thr |
| 335             |                     | 340                 | 345 |
| Val Ser Val Leu | Val Phe Asp Phe Arg | Pro Ser Leu Glu Phe | Phe |
| 350             |                     | 355                 | 360 |
| Leu Glu Ala Pro | Ser Val Leu Leu Ser | Ile Phe Ile Tyr Asn | Ala |
| 365             |                     | 370                 | 375 |
| Ser Lys Pro Gln | Val Pro Glu Tyr Ala | Pro Arg Gln Glu Arg | Ile |
| 380             |                     | 385                 | 390 |
| Arg Asp Leu Ser | Gly Asn Leu Trp Glu | Arg Ser Ser Gly Asp | Gly |
| 395             |                     | 400                 | 405 |
| Glu Glu Leu Glu | Arg Leu Thr Lys Pro | Lys Ser Asp Glu Ser | Asp |
| 410             |                     | 415                 | 420 |
| Glu Asp Thr Phe |                     |                     |     |

<210> 15  
<211> 755  
<212> DNA  
<213> Homo sapiens

<400> 15  
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ctatacctac tgtagcttct ccacgtatgg accctaaagg ctactgctgc 150  
tactacgggg ctagacagtt actgtctcag ctctaggatg tgcgttcttc 200  
cactagaagc tcttctgagg gaggttaatta aaaaacagtg gaatggaaaa 250  
acagtgcgtg agtcatcctg taatatgctc cttgtcaaca atgtatacat 300  
tcctgctagg tgccatattc attgctttta gctcaagtcg catcttacta 350  
gtgaagtatt ctgccaatga agaaaacaag tatgattatc ttccaactac 400  
tgtgaatgtg tgctcagaac tgggtgaagct agttttctgt gtgcttgtgt 450  
cattctgtgt tataaagaaa gatcatcaaa gtagaaattt gaaatatgct 500  
tcctggaagg aattctctga tttcatgaag tgggtccattc ctgcctttct 550  
ttatttcctg gataacttga ttgtcttcta tgtcctgtcc tatcttcaac 600  
cagccatggc tggtatcttc tcaaatttta gcattataac aacagctctt 650  
ctattcagga tagtgctgaa gaggcgtcta aactggatcc agtgggcttc 700  
cctcctgact ttatttttgt ctattgtggc cttgactgcc gggactaaaa 750  
cttta 755

<210> 16  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 16  
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<210> 17  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 17  
tcagagaatt ccttccagga 20

<210> 18  
<211> 40  
<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 18

acagtgcctgt agtcatcctg taatatgctc cttgtcaaca 40

<210> 19

<211> 2142

<212> DNA

<213> Homo sapiens

<400> 19

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gcggcctgcg gggcagagga gcatcccgtc taccaggtcc caagcggcgt 150  
ggcccgcggg tcatggccaa aggagaaggc gccgagagcg gctccgcggc 200  
ggggctgcta cccaccagca tcctccaaag cactgaacgc ccggcccagg 250  
tgaagaaaga accgaaaaag aagaaacaac agttgtctgt ttgcaacaag 300  
ctttgctatg cacttggggg agccccctac caggtgacgg gctgtgccct 350  
gggtttcttc cttcagatct acctattgga tgtggctcag gtgggccctt 400  
tctctgcctc catcatcctg tttgtgggcc gagcctggga tgccatcaca 450  
gaccccctgg tgggcctctg catcagcaaa tccccctgga cctgcctggg 500  
tcgccttatg ccctggatca tcttctccac gccctggcc gtcattgcct 550  
acttcctcat ctggttcgtg cccgacttcc cacacggcca gacctattgg 600  
tacctgcttt tctattgcct ctttgaaaca atggtcacgt gtttccatgt 650  
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gattctgcca ccgcctatcg gatgactgtg gaagtgtgg gcacagtgt 750  
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catggcacca cttcacacag ggaaacgcaa aaggcatacc tgctggcagc 900  
gggggtcatt gtctgtatct atataatctg tgctgtcatc ctgatcctgg 950  
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gcctacttcc ggggcctacg gctggtcacg agccacggcc catacatcaa 1050  
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ggaactttgt cttgttttgc acctacacct tgggcttccg caatgaattc 1150  
cagaatctac tccctggccat catgctctcg gccactttaa ccattcccat 1200  
ctggcagtggt ttcttgacct ggtttggcaa gaagacagct gtatatgttg 1250





Pro Ile Asp Glu Glu Arg Arg Arg Gln Asn Lys Lys Ala Leu Gln  
425 430 435

Ala Leu Arg Asp Glu Ala Ser Ser Ser Gly Cys Ser Glu Thr Asp  
440 445 450

Ser Thr Glu Leu Ala Ser Ile Leu  
455

<210> 21  
<211> 571  
<212> DNA  
<213> Homo sapiens

<400> 21  
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accctatgaa gcccagcagt ctgagccaat cgcctacttc cggggcctac 150  
ggctgggtcat gagccacggc ccatacatca aacttattac tggcttcctc 200  
ttcacctcct tggctttcat gctgggtggag gggaactttg tcttgttttg 250  
cacctacacc ttgggcttcc gcaatgaatt ccagaatcta ctctggcca 300  
tcatgctctc ggccacttta accattccca tctggcagtg gttcttgacc 350  
cggtttgcca agaagacagc tgtatatgtt gggatctcat cagcagtgcc 400  
atttctcatc ttggtggccc tcatggagag taacctcatc attacatatg 450  
cggtagctgt ggtagctggc atcagtgtgg cagctgcctt cttactacc 500  
tggtccatgc tgctgatgt cattgacgac ttccatctga agcagcccca 550  
cttccatgga accgagccca t 571

<210> 22  
<211> 1173  
<212> DNA  
<213> Homo sapiens

<400> 22  
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aaaggtgcag gtatgagcag gtctgaagac taacattttg tgaagttgta 100  
aaacagaaaa cctgttagaa atgtggtggt ttcagcaagg cctcagtttc 150  
cttccttcag cccttgtaat ttggacatct gctgctttca tattttcata 200  
cattactgca gtaacactcc accatataga cccggcttta cttatatca 250  
gtgacactgg tacagtagct ccagaaaaat gcttatttgg ggcaatgcta 300  
aatattgagg cagttttatg cattgctacc atttatgttc gttataagca 350  
agttcatgct ctgagtcctg aagagaacgt tatcatcaaa ttaaacaagg 400  
ctggccttgt acttgaata ctgagttgtt taggaacttc tattgtggca 450



aacttccaga aaacaaccct ttttgctgca catgtaagtg gagctgtgct 500  
 tacctttgggt atggggtcat tatatatggt tgttcagacc atcctttcct 550  
 accaaatgca gcccaaaatc catggcaaac aagtcttctg gatcagactg 600  
 ttgttgggta tctggtgtgg agtaagtgca cttagcatgc tgacttgctc 650  
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 attggaaccc cgaggacaaa gggtatgtgc ttcacatgat cactactgca 750  
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 ctactttcca gagatatttg atgaaaggat aaaatatttc tgtaatgatt 950  
 atgattctca gggattgggg aaaggttcac agaagttgct tattcttctc 1000  
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 gataatcagg aaacatgaaa gaagccattt gatagattat tctaaaggat 1100  
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<210> 23  
 <211> 266  
 <212> PRT  
 <213> Homo sapiens

<400> 23  
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 Val Ile Trp Thr Ser Ala Ala Phe Ile Phe Ser Tyr Ile Thr Ala  
 20 25 30  
 Val Thr Leu His His Ile Asp Pro Ala Leu Pro Tyr Ile Ser Asp  
 35 40 45  
 Thr Gly Thr Val Ala Pro Glu Lys Cys Leu Phe Gly Ala Met Leu  
 50 55 60  
 Asn Ile Ala Ala Val Leu Cys Ile Ala Thr Ile Tyr Val Arg Tyr  
 65 70 75  
 Lys Gln Val His Ala Leu Ser Pro Glu Glu Asn Val Ile Ile Lys  
 80 85 90  
 Leu Asn Lys Ala Gly Leu Val Leu Gly Ile Leu Ser Cys Leu Gly  
 95 100 105  
 Leu Ser Ile Val Ala Asn Phe Gln Lys Thr Thr Leu Phe Ala Ala  
 110 115 120  
 His Val Ser Gly Ala Val Leu Thr Phe Gly Met Gly Ser Leu Tyr  
 125 130 135

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Val | Gln | Thr | Ile | Leu | Ser | Tyr | Gln | Met | Gln | Pro | Lys | Ile | 140 | 145 | 150 |
| His | Gly | Lys | Gln | Val | Phe | Trp | Ile | Arg | Leu | Leu | Leu | Val | Ile | Trp | 155 | 160 | 165 |
| Cys | Gly | Val | Ser | Ala | Leu | Ser | Met | Leu | Thr | Cys | Ser | Ser | Val | Leu | 170 | 175 | 180 |
| His | Ser | Gly | Asn | Phe | Gly | Thr | Asp | Leu | Glu | Gln | Lys | Leu | His | Trp | 185 | 190 | 195 |
| Asn | Pro | Glu | Asp | Lys | Gly | Tyr | Val | Leu | His | Met | Ile | Thr | Thr | Ala | 200 | 205 | 210 |
| Ala | Glu | Trp | Ser | Met | Ser | Phe | Ser | Phe | Phe | Gly | Phe | Phe | Leu | Thr | 215 | 220 | 225 |
| Tyr | Ile | Arg | Asp | Phe | Gln | Lys | Ile | Ser | Leu | Arg | Val | Glu | Ala | Asn | 230 | 235 | 240 |
| Leu | His | Gly | Leu | Thr | Leu | Tyr | Asp | Thr | Ala | Pro | Cys | Pro | Ile | Asn | 245 | 250 | 255 |
| Asn | Glu | Arg | Thr | Arg | Leu | Leu | Ser | Arg | Asp | Ile |     |     |     |     | 260 | 265 |     |

<210> 24  
 <211> 485  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 14, 484  
 <223> unknown base

<400> 24  
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 ctgatgccga gttccgtctc tcgggtcttt tcttggtccc aggcaaagcg 100  
 gagcggagat cctcaaacgg cctagtgcct cgcgcttccg gagaaaatca 150  
 gcgggtctaataattcctct ggtttgttga agcagttacc aagaatcttc 200  
 aaccctttcc cacaaaagct aattgagtac acgttcctgt tgagtacacg 250  
 ttcctgttga ttacaaaag gtgcaggtat gagcaggtct gaagactaac 300  
 attttgtgaa gttgtaaaac agaaaacctg ttagaaatgt ggtgggtttca 350  
 gcaaggcctc agtttccttc cttcagccct tgtaatttgg acatctgctg 400  
 ctttcatatt ttcatacatt actgcagtaa cactccacca tatagaccog 450  
 gctttacctt atatcagtga cactggtaca gtanc 485

<210> 25  
 <211> 40  
 <212> DNA  
 <213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 25  
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<210> 26  
<211> 46  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 26  
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<210> 27  
<211> 1399  
<212> DNA  
<213> Homo sapiens

<400> 27  
cccacgcgtc cgcccgcgcg tgcgtcccgg agtgcaagtg agcttctcgg 50  
ctgccccgcg ggccggggtg cggagccgac atgcgcccgc ttctcggcct 100  
ccttctggtc ttcgccggtc gcaccttcgc cttgtacttg ctgtcgacgc 150  
gactgccccg cgggcggaga ctgggctcca ccgaggaggc tggaggcagg 200  
tcgctgtggt tccccctcca cctggcagag ctgcgggagc tctctgaggt 250  
ccttcgagag taccggaagg agcaccaggc ctacgtgttc ctgctcttct 300  
gcggcgccta cctctacaaa cagggttttg ccatccccgg ctccagcttc 350  
ctgaatgttt tagctggtgc cttgtttggg ccatggctgg ggcttctgct 400  
gtgctgtgtg ttgacctcgg tgggtgccac atgctgctac ctgctctcca 450  
gtattttttg caaacagttg gtggtgtcct actttctctga taaagtggcc 500  
ctgctgcaga gaaaggtgga ggagaacaga aacagcttgt tttttttctt 550  
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cggcccctaat tctgaacatt cccatcgtgc agttcttctt ctcaattctt 650  
atcggtttga tcccatataa tttcatctgt gtgcagacag ggtccatcct 700  
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aaatttagtc agaaacatct gcaattgaat gaaacaagta ctgctaata 850  
tatacacagt agaaaagaca catgatctgg attttctggt tgccacatcc 900  
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tgcaagtgtct tttcagaaaag gacactctgc tcttgaaggt gtattacatc 1050  
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 agaaaaatgct gtttgtggcc gggcgcggtg gctcacgcct gtaatcccag 1150  
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 agcctggcca agatggtgaa atcctgtctc taataaaaat acaaaaatta 1250  
 gccaggcgtg gtggcaggca cctgtaatcc cagctactcg ggaggctgag 1300  
 gcaggagaat tgcttgaacc aaggtggcag aggttgcagt aagccaagat 1350  
 cacaccactg cactccagcc tgggtgatag agtgagacac tgtcttgac 1399

<210> 28  
 <211> 264  
 <212> PRT  
 <213> Homo sapiens

<400> 28  
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 Phe Ala Leu Tyr Leu Leu Ser Thr Arg Leu Pro Arg Gly Arg Arg  
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 Leu Gly Ser Thr Glu Glu Ala Gly Gly Arg Ser Leu Trp Phe Pro  
 35 40 45  
 Ser Asp Leu Ala Glu Leu Arg Glu Leu Ser Glu Val Leu Arg Glu  
 50 55 60  
 Tyr Arg Lys Glu His Gln Ala Tyr Val Phe Leu Leu Phe Cys Gly  
 65 70 75  
 Ala Tyr Leu Tyr Lys Gln Gly Phe Ala Ile Pro Gly Ser Ser Phe  
 80 85 90  
 Leu Asn Val Leu Ala Gly Ala Leu Phe Gly Pro Trp Leu Gly Leu  
 95 100 105  
 Leu Leu Cys Cys Val Leu Thr Ser Val Gly Ala Thr Cys Cys Tyr  
 110 115 120  
 Leu Leu Ser Ser Ile Phe Gly Lys Gln Leu Val Val Ser Tyr Phe  
 125 130 135  
 Pro Asp Lys Val Ala Leu Leu Gln Arg Lys Val Glu Glu Asn Arg  
 140 145 150  
 Asn Ser Leu Phe Phe Phe Leu Leu Phe Leu Arg Leu Phe Pro Met  
 155 160 165  
 Thr Pro Asn Trp Phe Leu Asn Leu Ser Ala Pro Ile Leu Asn Ile  
 170 175 180  
 Pro Ile Val Gln Phe Phe Phe Ser Val Leu Ile Gly Leu Ile Pro  
 185 190 195  
 Tyr Asn Phe Ile Cys Val Gln Thr Gly Ser Ile Leu Ser Thr Leu  
 200 205 210

Thr Ser Leu Asp Ala Leu Phe Ser Trp Asp Thr Val Phe Lys Leu  
 215 220 225

Leu Ala Ile Ala Met Val Ala Leu Ile Pro Gly Thr Leu Ile Lys  
 230 235 240

Lys Phe Ser Gln Lys His Leu Gln Leu Asn Glu Thr Ser Thr Ala  
 245 250 255

Asn His Ile His Ser Arg Lys Asp Thr  
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 tggaagacat ggatcttgct gccaacgaga tcagcattta tgacaaactt 200  
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 ctogcaacct tgggattaat cttgctcact gcctactttg tgattcaacc 400  
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 agtcagagcc cattcctgcc aactgcactg gctgtgcca gaaacacctg 650  
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 gccaaagtgt ggcgctgctt tcctgagcgg tggttcccat ttccttatcc 850  
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 35 40 45  
 Asn Glu Pro Gln Arg Pro Pro Pro Gln Tyr Pro Leu Leu Ile Val  
 50 55 60  
 Val Tyr Lys Val Leu Ala Thr Leu Gly Leu Ile Leu Leu Thr Ala  
 65 70 75  
 Tyr Phe Val Ile Gln Pro Phe Ser Pro Leu Ala Pro Glu Pro Val  
 80 85 90  
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 95 100 105  
 Leu Met Ser Leu Pro Ile Ala Lys Lys Tyr Met Ser Glu Asn Lys  
 110 115 120  
 Gly Val Pro Leu His Gly Gly Asp Glu Asp Arg Pro Phe Pro Asp  
 125 130 135  
 Phe Asp Pro Trp Trp Thr Asn Asp Cys Glu Gln Asn Glu Ser Glu  
 140 145 150  
 Pro Ile Pro Ala Asn Cys Thr Gly Cys Ala Gln Lys His Leu Lys  
 155 160 165  
 Val Met Leu Leu Glu Asp Ala Pro Arg Lys Phe Glu Arg Leu His  
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 185 190 195  
 Gln His Phe Leu Cys Gln Tyr Pro Glu Ala Thr Glu Gly Phe Ser  
 200 205 210  
 Glu Gly Phe Phe Ala Lys Trp Trp Arg Cys Phe Pro Glu Arg Trp  
 215 220 225  
 Phe Pro Phe Pro Tyr Pro Trp Arg Arg Pro Leu Asn Arg Ser Gln  
 230 235 240  
 Met Leu Arg Glu Leu Phe Pro Val Phe Thr His Leu Pro Phe Pro  
 245 250 255

CC496660

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Asp | Ala | Ser | Leu | Asn | Lys | Cys | Ser | Phe | Leu | His | Pro | Glu | Pro |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Val | Val | Gly | Ser | Lys | Met | His | Lys | Met | Pro | Asp | Leu | Phe | Ile | Ile |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Gly | Ser | Gly | Glu | Ala | Met | Leu | Gln | Leu | Ile | Pro | Pro | Phe | Gln | Cys |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Arg | Arg | His | Cys | Gln | Ser | Val | Ala | Met | Pro | Ile | Glu | Pro | Gly | Asp |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Ile | Gly | Tyr | Val | Asp | Thr | Thr | His | Trp | Lys | Val | Tyr | Val | Ile | Ala |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Arg | Gly | Val | Gln | Pro | Leu | Val | Ile | Cys | Asp | Gly | Thr | Ala | Phe | Ser |
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Glu Leu

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 <212> DNA  
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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Ile | Asp | Gln | Ala | Asn | Tyr | Phe | Leu | Asn | Phe | Pro | Cys | Lys | Val | 275 | 280 | 285 |
| Gly | Thr | Thr | Pro | Val | Ser | Ser | Pro | Ser | Gln | Thr | Pro | Arg | Pro | Gln | 290 | 295 | 300 |
| Pro | Gly | Pro | Ile | Pro | Pro | His | Thr | Gln | Val | Arg | Asn | Gln | Val | Tyr | 305 | 310 | 315 |
| Ser | Trp | Leu | Leu | Arg | Leu | Arg | Pro | Pro | Ser | Gln | Gly | Tyr | Leu | Ser | 320 | 325 | 330 |
| Ser | Arg | Ser | Pro | Gln | Glu | Met | Leu | Arg | Ala | Ser | Gly | Leu | Thr | Gln | 335 | 340 | 345 |
| Lys | Trp | Val | Gln | Arg | Glu | Ile | Ser | Asn | Phe | Glu | Tyr | Leu | Met | Gln | 350 | 355 | 360 |
| Leu | Asn | Thr | Ile | Ala | Gly | Arg | Thr | Tyr | Asn | Asp | Leu | Ser | Gln | Tyr | 365 | 370 | 375 |
| Pro | Val | Phe | Pro | Trp | Val | Leu | Gln | Asp | Tyr | Val | Ser | Pro | Thr | Leu | 380 | 385 | 390 |
| Asp | Leu | Ser | Asn | Pro | Ala | Val | Phe | Arg | Asp | Leu | Ser | Lys | Pro | Ile | 395 | 400 | 405 |
| Gly | Val | Val | Asn | Pro | Lys | His | Ala | Gln | Leu | Val | Arg | Glu | Lys | Tyr | 410 | 415 | 420 |
| Glu | Ser | Phe | Glu | Asp | Pro | Ala | Gly | Thr | Ile | Asp | Lys | Phe | His | Tyr | 425 | 430 | 435 |
| Gly | Thr | His | Tyr | Ser | Asn | Ala | Ala | Gly | Val | Met | His | Tyr | Leu | Ile | 440 | 445 | 450 |
| Arg | Val | Glu | Pro | Phe | Thr | Ser | Leu | His | Val | Gln | Leu | Gln | Ser | Gly | 455 | 460 | 465 |
| Arg | Phe | Asp | Cys | Ser | Asp | Arg | Gln | Phe | His | Ser | Val | Ala | Ala | Ala | 470 | 475 | 480 |
| Trp | Gln | Ala | Arg | Leu | Glu | Ser | Pro | Ala | Asp | Val | Lys | Glu | Leu | Ile | 485 | 490 | 495 |
| Pro | Glu | Phe | Phe | Tyr | Phe | Pro | Asp | Phe | Leu | Glu | Asn | Gln | Asn | Gly | 500 | 505 | 510 |
| Phe | Asp | Leu | Gly | Cys | Leu | Gln | Leu | Thr | Asn | Glu | Lys | Val | Gly | Asp | 515 | 520 | 525 |
| Val | Val | Leu | Pro | Pro | Trp | Ala | Ser | Ser | Pro | Glu | Asp | Phe | Ile | Gln | 530 | 535 | 540 |
| Gln | His | Arg | Gln | Ala | Leu | Glu | Ser | Glu | Tyr | Val | Ser | Ala | His | Leu | 545 | 550 | 555 |
| His | Glu | Trp | Ile | Asp | Leu | Ile | Phe | Gly | Tyr | Lys | Gln | Arg | Gly | Pro | 560 | 565 | 570 |
| Ala | Ala | Glu | Glu | Ala | Leu | Asn | Val | Phe | Tyr | Tyr | Cys | Thr | Tyr | Glu | 575 | 580 | 585 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ala | Val | Asp | Leu | Asp | His | Val | Thr | Asp | Glu | Arg | Glu | Arg | Lys | 590 | 595 | 600 |
| Ala | Leu | Glu | Gly | Ile | Ile | Ser | Asn | Phe | Gly | Gln | Thr | Pro | Cys | Gln | 605 | 610 | 615 |
| Leu | Leu | Lys | Glu | Pro | His | Pro | Thr | Arg | Leu | Ser | Ala | Glu | Glu | Ala | 620 | 625 | 630 |
| Ala | His | Arg | Leu | Ala | Arg | Leu | Asp | Thr | Asn | Ser | Pro | Ser | Ile | Phe | 635 | 640 | 645 |
| Gln | His | Leu | Asp | Glu | Leu | Lys | Ala | Phe | Phe | Ala | Glu | Val | Thr | Val | 650 | 655 | 660 |
| Ser | Ala | Ser | Gly | Leu | Leu | Gly | Thr | His | Ser | Trp | Leu | Pro | Tyr | Asp | 665 | 670 | 675 |
| Arg | Asn | Ile | Ser | Asn | Tyr | Phe | Ser | Phe | Ser | Lys | Asp | Pro | Thr | Met | 680 | 685 | 690 |
| Gly | Ser | His | Lys | Thr | Gln | Arg | Leu | Leu | Ser | Gly | Pro | Trp | Val | Pro | 695 | 700 | 705 |
| Gly | Ser | Gly | Val | Ser | Gly | Gln | Ala | Leu | Ala | Val | Ala | Pro | Asp | Gly | 710 | 715 | 720 |
| Lys | Leu | Leu | Phe | Ser | Gly | Gly | His | Trp | Asp | Gly | Ser | Leu | Arg | Val | 725 | 730 | 735 |
| Thr | Ala | Leu | Pro | Arg | Gly | Lys | Leu | Leu | Ser | Gln | Leu | Ser | Cys | His | 740 | 745 | 750 |
| Leu | Asp | Val | Val | Thr | Cys | Leu | Ala | Leu | Asp | Thr | Cys | Gly | Ile | Tyr | 755 | 760 | 765 |
| Leu | Ile | Ser | Gly | Ser | Arg | Asp | Thr | Thr | Cys | Met | Val | Trp | Arg | Leu | 770 | 775 | 780 |
| Leu | His | Gln | Gly | Gly | Leu | Ser | Val | Gly | Leu | Ala | Pro | Lys | Pro | Val | 785 | 790 | 795 |
| Gln | Val | Leu | Tyr | Gly | His | Gly | Ala | Ala | Val | Ser | Cys | Val | Ala | Ile | 800 | 805 | 810 |
| Ser | Thr | Glu | Leu | Asp | Met | Ala | Val | Ser | Gly | Ser | Glu | Asp | Gly | Thr | 815 | 820 | 825 |
| Val | Ile | Ile | His | Thr | Val | Arg | Arg | Gly | Gln | Phe | Val | Ala | Ala | Leu | 830 | 835 | 840 |
| Arg | Pro | Leu | Gly | Ala | Thr | Phe | Pro | Gly | Pro | Ile | Phe | His | Leu | Ala | 845 | 850 | 855 |
| Leu | Gly | Ser | Glu | Gly | Gln | Ile | Val | Val | Gln | Ser | Ser | Ala | Trp | Glu | 860 | 865 | 870 |
| Arg | Pro | Gly | Ala | Gln | Val | Thr | Tyr | Ser | Leu | His | Leu | Tyr | Ser | Val | 875 | 880 | 885 |
| Asn | Gly | Lys | Leu | Arg | Ala | Ser | Leu | Pro | Leu | Ala | Glu | Gln | Pro | Thr | 890 | 895 | 900 |

|     |     |     |     |     |     |     |     |     |      |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|
| Ala | Leu | Thr | Val | Thr | Glu | Asp | Phe | Val | Leu  | Leu | Gly | Thr | Ala | Gln |
|     |     |     |     | 905 |     |     |     |     | 910  |     |     |     |     | 915 |
| Cys | Ala | Leu | His | Ile | Leu | Gln | Leu | Asn | Thr  | Leu | Leu | Pro | Ala | Ala |
|     |     |     |     | 920 |     |     |     |     | 925  |     |     |     |     | 930 |
| Pro | Pro | Leu | Pro | Met | Lys | Val | Ala | Ile | Arg  | Ser | Val | Ala | Val | Thr |
|     |     |     |     | 935 |     |     |     |     | 940  |     |     |     |     | 945 |
| Lys | Glu | Arg | Ser | His | Val | Leu | Val | Gly | Leu  | Glu | Asp | Gly | Lys | Leu |
|     |     |     |     | 950 |     |     |     |     | 955  |     |     |     |     | 960 |
| Ile | Val | Val | Val | Ala | Gly | Gln | Pro | Ser | Glu  | Val | Arg | Ser | Ser | Gln |
|     |     |     |     | 965 |     |     |     |     | 970  |     |     |     |     | 975 |
| Phe | Ala | Arg | Lys | Leu | Trp | Arg | Ser | Ser | Arg  | Arg | Ile | Ser | Gln | Val |
|     |     |     |     | 980 |     |     |     |     | 985  |     |     |     |     | 990 |
| Ser | Ser | Gly | Glu | Thr | Glu | Tyr | Asn | Pro | Thr  | Glu | Ala | Arg |     |     |
|     |     |     |     | 995 |     |     |     |     | 1000 |     |     |     |     |     |

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Lys | Leu | Arg | Gly | Val | Gln | Asn | Pro | Val | Ala | Arg | Cys | Ile | Met | Cys |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Cys | Phe | Lys | Cys | Cys | Leu | Trp | Cys | Leu | Glu | Lys | Phe | Ile | Lys | Phe |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Leu | Asn | Arg | Asn | Ala | Tyr | Ile | Met | Ile | Ala | Ile | Tyr | Gly | Lys | Asn |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Phe | Cys | Val | Ser | Ala | Lys | Asn | Ala | Phe | Met | Leu | Leu | Met | Arg | Asn |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Ile | Val | Arg | Val | Val | Val | Leu | Asp | Lys | Val | Thr | Asp | Leu | Leu | Leu |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Phe | Phe | Gly | Lys | Leu | Leu | Val | Val | Gly | Gly | Val | Gly | Val | Leu | Ser |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Phe | Phe | Phe | Phe | Ser | Gly | Arg | Ile | Pro | Gly | Leu | Gly | Lys | Asp | Phe |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Lys | Ser | Pro | His | Leu | Asn | Tyr | Tyr | Trp | Leu | Pro | Ile | Met | Thr | Ser |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Ile | Leu | Gly | Ala | Tyr | Val | Ile | Ala | Ser | Gly | Phe | Phe | Ser | Val | Phe |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Gly | Met | Cys | Val | Asp | Thr | Leu | Phe | Leu | Cys | Phe | Leu | Glu | Asp | Leu |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Glu | Arg | Asn | Asn | Gly | Ser | Leu | Asp | Arg | Pro | Tyr | Tyr | Met | Ser | Lys |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Ser | Leu | Leu | Lys | Ile | Leu | Gly | Lys | Lys | Asn | Glu | Ala | Pro | Pro | Asp |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Asn | Lys | Lys | Arg | Lys | Lys |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 320 |     |     |     |     |     |     |     |     |     |     |  |

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 <213> Artificial Sequence

<220>  
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<400> 37  
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<210> 38  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 38  
 gtctttaccc agccccggga tgcg 24

<210> 39  
 <211> 50

<212> DNA  
<213> Artificial Sequence

<220>  
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<400> 39  
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<210> 40  
<211> 1365  
<212> DNA  
<213> Homo sapiens

<400> 40  
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aggtgggtcca gagccagagg gtcccttctc tcgtggcctc ggacgtggat 150  
gctctgtgtg cgtgcaagat ccttcaggcc ttgttccagt gtgaccacgt 200  
gcaatatacg ctgggtccag tttctgggtg gcaagaactt gaaactgcat 250  
ttcttgagca taaagaacag tttcattatt ttattctcat aaactgtgga 300  
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gccaccatgt ctttgatgga gagccccgag aaggatggct cagggacaga 1250  
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<210> 41  
 <211> 566  
 <212> PRT  
 <213> Homo sapiens

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                   20                  25                  30  
 Cys Ala Cys Lys Ile Leu Gln Ala Leu Phe Gln Cys Asp His Val  
                   35                  40                  45  
 Gln Tyr Thr Leu Val Pro Val Ser Gly Trp Gln Glu Leu Glu Thr  
                   50                  55                  60  
 Ala Phe Leu Glu His Lys Glu Gln Phe His Tyr Phe Ile Leu Ile  
                   65                  70                  75  
 Asn Cys Gly Ala Asn Val Asp Leu Leu Asp Ile Leu Gln Pro Asp  
                   80                  85                  90  
 Glu Asp Thr Ile Phe Phe Val Cys Asp Ser His Arg Pro Val Asn  
                   95                  100                  105  
 Val Val Asn Val Tyr Asn Asp Thr Gln Ile Lys Leu Leu Ile Lys  
                   110                  115                  120  
 Gln Asp Asp Asp Leu Glu Val Pro Ala Tyr Glu Asp Ile Phe Arg  
                   125                  130                  135  
 Asp Glu Glu Glu Asp Glu Glu His Ser Gly Asn Asp Ser Asp Gly  
                   140                  145                  150  
 Ser Glu Pro Ser Glu Lys Arg Thr Arg Leu Glu Glu Glu Ile Val  
                   155                  160                  165  
 Glu Gln Thr Met Arg Arg Arg Gln Arg Arg Glu Trp Glu Ala Arg  
                   170                  175                  180  
 Arg Arg Asp Ile Leu Phe Asp Tyr Glu Gln Tyr Glu Tyr His Gly  
                   185                  190                  195  
 Thr Ser Ser Ala Met Val Met Phe Glu Leu Ala Trp Met Leu Ser  
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 Lys Asp Leu Asn Asp Met Leu Trp Trp Ala Ile Val Gly Leu Thr  
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 Asp Gln Trp Val Gln Asp Lys Ile Thr Gln Met Lys Tyr Val Thr  
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 Asp Val Gly Val Leu Gln Arg His Val Ser Arg His Asn His Arg

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| 260                                 | 265                     |  |     |  | 270 |
| Ser Phe Glu Tyr Asp Leu Arg Leu Val | Leu Tyr Gln His Trp Ser |  |     |  |     |
| 275                                 | 280                     |  |     |  | 285 |
| Leu His Asp Ser Leu Cys Asn Thr Ser | Tyr Thr Ala Ala Arg Phe |  |     |  |     |
| 290                                 | 295                     |  |     |  | 300 |
| Lys Leu Trp Ser Val His Gly Gln Lys | Arg Leu Gln Glu Phe Leu |  |     |  |     |
| 305                                 | 310                     |  |     |  | 315 |
| Ala Asp Met Gly Leu Pro Leu Lys Gln | Val Lys Gln Lys Phe Gln |  |     |  |     |
| 320                                 | 325                     |  |     |  | 330 |
| Ala Met Asp Ile Ser Leu Lys Glu Asn | Leu Arg Glu Met Ile Glu |  |     |  |     |
| 335                                 | 340                     |  |     |  | 345 |
| Glu Ser Ala Asn Lys Phe Gly Met Lys | Asp Met Arg Val Gln Thr |  |     |  |     |
| 350                                 | 355                     |  |     |  | 360 |
| Phe Ser Ile His Phe Gly Phe Lys His | Lys Phe Leu Ala Ser Asp |  |     |  |     |
| 365                                 | 370                     |  |     |  | 375 |
| Val Val Phe Ala Thr Met Ser Leu Met | Glu Ser Pro Glu Lys Asp |  |     |  |     |
| 380                                 | 385                     |  |     |  | 390 |
| Gly Ser Gly Thr Asp His Phe Ile Gln | Ala Leu Asp Ser Leu Ser |  |     |  |     |
| 395                                 | 400                     |  |     |  | 405 |
| Arg Ser Asn Leu Asp Lys Leu Tyr His | Gly Leu Glu Leu Ala Lys |  |     |  |     |
| 410                                 | 415                     |  |     |  | 420 |
| Lys Gln Leu Arg Ala Thr Gln Gln Thr | Ile Ala Ser Cys Leu Cys |  |     |  |     |
| 425                                 | 430                     |  |     |  | 435 |
| Thr Asn Leu Val Ile Ser Gln Gly Pro | Phe Leu Tyr Cys Ser Leu |  |     |  |     |
| 440                                 | 445                     |  |     |  | 450 |
| Met Glu Gly Thr Pro Asp Val Met Leu | Phe Ser Arg Pro Ala Ser |  |     |  |     |
| 455                                 | 460                     |  |     |  | 465 |
| Leu Ser Leu Leu Ser Lys His Leu Leu | Lys Ser Phe Val Cys Ser |  |     |  |     |
| 470                                 | 475                     |  |     |  | 480 |
| Thr Lys Asn Arg Arg Cys Lys Leu Leu | Pro Leu Val Met Ala Ala |  |     |  |     |
| 485                                 | 490                     |  |     |  | 495 |
| Pro Leu Ser Met Glu His Gly Thr Val | Thr Val Val Gly Ile Pro |  |     |  |     |
| 500                                 | 505                     |  |     |  | 510 |
| Pro Glu Thr Asp Ser Ser Asp Arg Lys | Asn Phe Phe Gly Arg Ala |  |     |  |     |
| 515                                 | 520                     |  |     |  | 525 |
| Phe Glu Lys Ala Ala Glu Ser Thr Ser | Ser Arg Met Leu His Asn |  |     |  |     |
| 530                                 | 535                     |  |     |  | 540 |
| His Phe Asp Leu Ser Val Ile Glu Leu | Lys Ala Glu Asp Arg Ser |  |     |  |     |
| 545                                 | 550                     |  |     |  | 555 |
| Lys Phe Leu Asp Ala Leu Ile Ser Leu | Leu Ser                 |  |     |  |     |

<210> 42  
 <211> 380  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 44, 118, 172, 183  
 <223> unknown base

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 ctcttcgtgg cctcggangt ggatgctctg tgtgcgtgca agatccttca 150  
 ggccttgttc cagtgtgacc angtgcaata tangctgggt ccagtttctg 200  
 ggtggcaaga acttgaaact gcatttcttg agcataaaga acagtttcat 250  
 tattttattc tcataaactg tggagctaata gtagacctat tggatattct 300  
 tcaacctgat gaagacacta tattctttgt gtgtgacacc cataggccag 350  
 tcaatgttgt caatgtatac aacgataccc 380

<210> 43  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 43  
 ttccgcaaag agttctacga ggtgg 25

<210> 44  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 44  
 attgacaaca ttgactggcc tatggg 26

<210> 45  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 45  
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<210> 46

<211> 3089  
<212> DNA  
<213> Homo sapiens

<400> 46  
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aggaacgaaa agagacagtt ttttttgaa agctaagtct tccctttatc 200  
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<222> 1-20
<223> Signal Peptide
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<220>
<221> C1q Domain Proteins
<222> 144-178, 78-111, 84-117
<223> C1q Domain Proteins
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|                 | 215                 | 220                 | 225 |
| Trp Val Arg Leu | Phe Lys Arg Gln Arg | Glu Asn Ala Ile Tyr | Ser |
|                 | 230                 | 235                 | 240 |
| Asn Asp Phe Asp | Thr Tyr Ile Thr Phe | Ser Gly His Leu Ile | Lys |
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| Ala Glu Asp Asp |                     |                     |     |

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<210> 49  
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<220>  
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<400> 49  
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<210> 50  
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<220>  
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<400> 50  
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<210> 51  
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 <212> DNA  
 <213> Homo sapiens

<400> 51  
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<210> 52  
 <211> 673  
 <212> PRT  
 <213> Homo sapiens

<400> 52  
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 Ala Leu Gly Pro Gly Val Gln Gly Cys Pro Ser Gly Cys Gln Cys  
 20 25 30  
 Ser Gln Pro Gln Thr Val Phe Cys Thr Ala Arg Gln Gly Thr Thr  
 35 40 45  
 Val Pro Arg Asp Val Pro Pro Asp Thr Val Gly Leu Tyr Val Phe  
 50 55 60  
 Glu Asn Gly Ile Thr Met Leu Asp Ala Gly Ser Phe Ala Gly Leu  
 65 70 75  
 Pro Gly Leu Gln Leu Leu Asp Leu Ser Gln Asn Gln Ile Ala Ser  
 80 85 90  
 Leu Pro Ser Gly Val Phe Gln Pro Leu Ala Asn Leu Ser Asn Leu

| 95  |     |     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Leu | Thr | Ala | Asn | Arg | Leu | His | Glu | Ile | Thr | Asn | Glu | Thr | Phe |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Arg | Gly | Leu | Arg | Arg | Leu | Glu | Arg | Leu | Tyr | Leu | Gly | Lys | Asn | Arg |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ile | Arg | His | Ile | Gln | Pro | Gly | Ala | Phe | Asp | Thr | Leu | Asp | Arg | Leu |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Leu | Glu | Leu | Lys | Leu | Gln | Asp | Asn | Glu | Leu | Arg | Ala | Leu | Pro | Pro |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Leu | Arg | Leu | Pro | Arg | Leu | Leu | Leu | Leu | Asp | Leu | Ser | His | Asn | Ser |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Leu | Leu | Ala | Leu | Glu | Pro | Gly | Ile | Leu | Asp | Thr | Ala | Asn | Val | Glu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Ala | Leu | Arg | Leu | Ala | Gly | Leu | Gly | Leu | Gln | Gln | Leu | Asp | Glu | Gly |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Leu | Phe | Ser | Arg | Leu | Arg | Asn | Leu | His | Asp | Leu | Asp | Val | Ser | Asp |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Asn | Gln | Leu | Glu | Arg | Val | Pro | Pro | Val | Ile | Arg | Gly | Leu | Arg | Gly |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Thr | Arg | Leu | Arg | Leu | Ala | Gly | Asn | Thr | Arg | Ile | Ala | Gln | Leu |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Arg | Pro | Glu | Asp | Leu | Ala | Gly | Leu | Ala | Ala | Leu | Gln | Glu | Leu | Asp |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Val | Ser | Asn | Leu | Ser | Leu | Gln | Ala | Leu | Pro | Gly | Asp | Leu | Ser | Gly |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Leu | Phe | Pro | Arg | Leu | Arg | Leu | Leu | Ala | Ala | Ala | Arg | Asn | Pro | Phe |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Asn | Cys | Val | Cys | Pro | Leu | Ser | Trp | Phe | Gly | Pro | Trp | Val | Arg | Glu |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Ser | His | Val | Thr | Leu | Ala | Ser | Pro | Glu | Glu | Thr | Arg | Cys | His | Phe |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Pro | Pro | Lys | Asn | Ala | Gly | Arg | Leu | Leu | Leu | Glu | Leu | Asp | Tyr | Ala |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Asp | Phe | Gly | Cys | Pro | Ala | Thr | Thr | Thr | Thr | Ala | Thr | Val | Pro | Thr |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Thr | Arg | Pro | Val | Val | Arg | Glu | Pro | Thr | Ala | Leu | Ser | Ser | Ser | Leu |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Ala | Pro | Thr | Trp | Leu | Ser | Pro | Thr | Ala | Pro | Ala | Thr | Glu | Ala | Pro |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Ser | Pro | Pro | Ser | Thr | Ala | Pro | Pro | Thr | Val | Gly | Pro | Val | Pro | Gln |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Pro | Gln | Asp | Cys | Pro | Pro | Ser | Thr | Cys | Leu | Asn | Gly | Gly | Thr | Cys |

| 410                        | 415                        | 420                        |
|----------------------------|----------------------------|----------------------------|
| His Leu Gly Thr Arg<br>425 | His His Leu Ala Cys<br>430 | Leu Cys Pro Glu Gly<br>435 |
| Phe Thr Gly Leu Tyr<br>440 | Cys Glu Ser Gln Met<br>445 | Gly Gln Gly Thr Arg<br>450 |
| Pro Ser Pro Thr Pro<br>455 | Val Thr Pro Arg Pro<br>460 | Pro Arg Ser Leu Thr<br>465 |
| Leu Gly Ile Glu Pro<br>470 | Val Ser Pro Thr Ser<br>475 | Leu Arg Val Gly Leu<br>480 |
| Gln Arg Tyr Leu Gln<br>485 | Gly Ser Ser Val Gln<br>490 | Leu Arg Ser Leu Arg<br>495 |
| Leu Thr Tyr Arg Asn<br>500 | Leu Ser Gly Pro Asp<br>505 | Lys Arg Leu Val Thr<br>510 |
| Leu Arg Leu Pro Ala<br>515 | Ser Leu Ala Glu Tyr<br>520 | Thr Val Thr Gln Leu<br>525 |
| Arg Pro Asn Ala Thr<br>530 | Tyr Ser Val Cys Val<br>535 | Met Pro Leu Gly Pro<br>540 |
| Gly Arg Val Pro Glu<br>545 | Gly Glu Glu Ala Cys<br>550 | Gly Glu Ala His Thr<br>555 |
| Pro Pro Ala Val His<br>560 | Ser Asn His Ala Pro<br>565 | Val Thr Gln Ala Arg<br>570 |
| Glu Gly Asn Leu Pro<br>575 | Leu Leu Ile Ala Pro<br>580 | Ala Leu Ala Ala Val<br>585 |
| Leu Leu Ala Ala Leu<br>590 | Ala Ala Val Gly Ala<br>595 | Ala Tyr Cys Val Arg<br>600 |
| Arg Gly Arg Ala Met<br>605 | Ala Ala Ala Ala Gln<br>610 | Asp Lys Gly Gln Val<br>615 |
| Gly Pro Gly Ala Gly<br>620 | Pro Leu Glu Leu Glu<br>625 | Gly Val Lys Val Pro<br>630 |
| Leu Glu Pro Gly Pro<br>635 | Lys Ala Thr Glu Gly<br>640 | Gly Gly Glu Ala Leu<br>645 |
| Pro Ser Gly Ser Glu<br>650 | Cys Glu Val Pro Leu<br>655 | Met Gly Phe Pro Gly<br>660 |
| Pro Gly Leu Gln Ser<br>665 | Pro Leu His Ala Lys<br>670 | Pro Tyr Ile                |

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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Thr | Phe | Glu | Phe | Asn | Lys | Glu | Leu | Arg | Tyr | Leu | Asp | Leu | Ser | Asn |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Asn | Arg | Leu | Lys | Ser | Val | Thr | Trp | Tyr | Leu | Leu | Ala | Gly | Leu | Arg |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Tyr | Leu | Asp | Leu | Ser | Phe | Asn | Asp | Phe | Asp | Thr | Met | Pro | Ile | Cys |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Glu | Glu | Ala | Gly | Asn | Met | Ser | His | Leu | Glu | Ile | Leu | Gly | Leu | Ser |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Gly | Ala | Lys | Ile | Gln | Lys | Ser | Asp | Phe | Gln | Lys | Ile | Ala | His | Leu |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| His | Leu | Asn | Thr | Val | Phe | Leu | Gly | Phe | Arg | Thr | Leu | Pro | His | Tyr |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Glu | Glu | Gly | Ser | Leu | Pro | Ile | Leu | Asn | Thr | Thr | Lys | Leu | His | Ile |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Val | Leu | Pro | Met | Asp | Thr | Asn | Phe | Trp | Val | Leu | Leu | Arg | Asp | Gly |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Ile | Lys | Thr | Ser | Lys | Ile | Leu | Glu | Met | Thr | Asn | Ile | Asp | Gly | Lys |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Ser | Gln | Phe | Val | Ser | Tyr | Glu | Met | Gln | Arg | Asn | Leu | Ser | Leu | Glu |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Asn | Ala | Lys | Thr | Ser | Val | Leu | Leu | Leu | Asn | Lys | Val | Asp | Leu | Leu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Trp | Asp | Asp | Leu | Phe | Leu | Ile | Leu | Gln | Phe | Val | Trp | His | Thr | Ser |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Val | Glu | His | Phe | Gln | Ile | Arg | Asn | Val | Thr | Phe | Gly | Gly | Lys | Ala |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Tyr | Leu | Asp | His | Asn | Ser | Phe | Asp | Tyr | Ser | Asn | Thr | Val | Met | Arg |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Thr | Ile | Lys | Leu | Glu | His | Val | His | Phe | Arg | Val | Phe | Tyr | Ile | Gln |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Gln | Asp | Lys | Ile | Tyr | Leu | Leu | Leu | Thr | Lys | Met | Asp | Ile | Glu | Asn |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |
| Leu | Thr | Ile | Ser | Asn | Ala | Gln | Met | Pro | His | Met | Leu | Phe | Pro | Asn |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |
| Tyr | Pro | Thr | Lys | Phe | Gln | Tyr | Leu | Asn | Phe | Ala | Asn | Asn | Ile | Leu |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Thr | Asp | Glu | Leu | Phe | Lys | Arg | Thr | Ile | Gln | Leu | Pro | His | Leu | Lys |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Thr | Leu | Ile | Leu | Asn | Gly | Asn | Lys | Leu | Glu | Thr | Leu | Ser | Leu | Val |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |
| Ser | Cys | Phe | Ala | Asn | Asn | Thr | Pro | Leu | Glu | His | Leu | Asp | Leu | Ser |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |

|   |     |     |     |
|---|-----|-----|-----|
| Gln Asn Leu Leu Gln His Lys Asn Asp Glu Asn Cys Ser Trp Pro | 410 | 415 | 420 |
| Glu Thr Val Val Asn Met Asn Leu Ser Tyr Asn Lys Leu Ser Asp | 425 | 430 | 435 |
| Ser Val Phe Arg Cys Leu Pro Lys Ser Ile Gln Ile Leu Asp Leu | 440 | 445 | 450 |
| Asn Asn Asn Gln Ile Gln Thr Val Pro Lys Glu Thr Ile His Leu | 455 | 460 | 465 |
| Met Ala Leu Arg Glu Leu Asn Ile Ala Phe Asn Phe Leu Thr Asp | 470 | 475 | 480 |
| Leu Pro Gly Cys Ser His Phe Ser Arg Leu Ser Val Leu Asn Ile | 485 | 490 | 495 |
| Glu Met Asn Phe Ile Leu Ser Pro Ser Leu Asp Phe Val Gln Ser | 500 | 505 | 510 |
| Cys Gln Glu Val Lys Thr Leu Asn Ala Gly Arg Asn Pro Phe Arg | 515 | 520 | 525 |
| Cys Thr Cys Glu Leu Lys Asn Phe Ile Gln Leu Glu Thr Tyr Ser | 530 | 535 | 540 |
| Glu Val Met Met Val Gly Trp Ser Asp Ser Tyr Thr Cys Glu Tyr | 545 | 550 | 555 |
| Pro Leu Asn Leu Arg Gly Thr Arg Leu Lys Asp Val His Leu His | 560 | 565 | 570 |
| Glu Leu Ser Cys Asn Thr Ala Leu Leu Ile Val Thr Ile Val Val | 575 | 580 | 585 |
| Ile Met Leu Val Leu Gly Leu Ala Val Ala Phe Cys Cys Leu His | 590 | 595 | 600 |
| Phe Asp Leu Pro Trp Tyr Leu Arg Met Leu Gly Gln Cys Thr Gln | 605 | 610 | 615 |
| Thr Trp His Arg Val Arg Lys Thr Thr Gln Glu Gln Leu Lys Arg | 620 | 625 | 630 |
| Asn Val Arg Phe His Ala Phe Ile Ser Tyr Ser Glu His Asp Ser | 635 | 640 | 645 |
| Leu Trp Val Lys Asn Glu Leu Ile Pro Asn Leu Glu Lys Glu Asp | 650 | 655 | 660 |
| Gly Ser Ile Leu Ile Cys Leu Tyr Glu Ser Tyr Phe Asp Pro Gly | 665 | 670 | 675 |
| Lys Ser Ile Ser Glu Asn Ile Val Ser Phe Ile Glu Lys Ser Tyr | 680 | 685 | 690 |
| Lys Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Asn Glu Trp | 695 | 700 | 705 |
| Cys His Tyr Glu Phe Tyr Phe Ala His His Asn Leu Phe His Glu | 710 | 715 | 720 |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ser | Asp | His | Ile | Ile | Leu | Ile | Leu | Leu | Glu | Pro | Ile | Pro | Phe |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |
| Tyr | Cys | Ile | Pro | Thr | Arg | Tyr | His | Lys | Leu | Lys | Ala | Leu | Leu | Glu |
|     |     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |
| Lys | Lys | Ala | Tyr | Leu | Glu | Trp | Pro | Lys | Asp | Arg | Arg | Lys | Cys | Gly |
|     |     |     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |
| Leu | Phe | Trp | Ala | Asn | Leu | Arg | Ala | Ala | Ile | Asn | Val | Asn | Val | Leu |
|     |     |     |     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |
| Ala | Thr | Arg | Glu | Met | Tyr | Glu | Leu | Gln | Thr | Phe | Thr | Glu | Leu | Asn |
|     |     |     |     | 785 |     |     |     |     | 790 |     |     |     |     | 795 |
| Glu | Glu | Ser | Arg | Gly | Ser | Thr | Ile | Ser | Leu | Met | Arg | Thr | Asp | Cys |
|     |     |     |     | 800 |     |     |     |     | 805 |     |     |     |     | 810 |

Leu

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 gggacgctgg acccacgatg gaattgacat caacaacaac tttcctgatt 1700





|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 185        |     |     |     |     | 190        |     |     |     |     | 195        |
| Glu | Val | Asp | Ala | Arg<br>200 | Arg | Leu | Thr | Arg | Phe<br>205 | Thr | Gly | Val | Ile | Thr<br>210 |
| Gln | Gly | Arg | Asn | Ser<br>215 | Leu | Trp | Leu | Ser | Asp<br>220 | Trp | Val | Thr | Ser | Tyr<br>225 |
| Lys | Val | Met | Val | Ser<br>230 | Asn | Asp | Ser | His | Thr<br>235 | Trp | Val | Thr | Val | Lys<br>240 |
| Asn | Gly | Ser | Gly | Asp<br>245 | Met | Ile | Phe | Glu | Gly<br>250 | Asn | Ser | Glu | Lys | Glu<br>255 |
| Ile | Pro | Val | Leu | Asn<br>260 | Glu | Leu | Pro | Val | Pro<br>265 | Met | Val | Ala | Arg | Tyr<br>270 |
| Ile | Arg | Ile | Asn | Pro<br>275 | Gln | Ser | Trp | Phe | Asp<br>280 | Asn | Gly | Ser | Ile | Cys<br>285 |
| Met | Arg | Met | Glu | Ile<br>290 | Leu | Gly | Cys | Pro | Leu<br>295 | Pro | Asp | Pro | Asn | Asn<br>300 |
| Tyr | Tyr | His | Arg | Arg<br>305 | Asn | Glu | Met | Thr | Thr<br>310 | Thr | Asp | Asp | Leu | Asp<br>315 |
| Phe | Lys | His | His | Asn<br>320 | Tyr | Lys | Glu | Met | Arg<br>325 | Gln | Leu | Met | Lys | Val<br>330 |
| Val | Asn | Glu | Met | Cys<br>335 | Pro | Asn | Ile | Thr | Arg<br>340 | Ile | Tyr | Asn | Ile | Gly<br>345 |
| Lys | Ser | His | Gln | Gly<br>350 | Leu | Lys | Leu | Tyr | Ala<br>355 | Val | Glu | Ile | Ser | Asp<br>360 |
| His | Pro | Gly | Glu | His<br>365 | Glu | Val | Gly | Glu | Pro<br>370 | Glu | Phe | His | Tyr | Ile<br>375 |
| Ala | Gly | Ala | His | Gly<br>380 | Asn | Glu | Val | Leu | Gly<br>385 | Arg | Glu | Leu | Leu | Leu<br>390 |
| Leu | Leu | Val | Gln | Phe<br>395 | Val | Cys | Gln | Glu | Tyr<br>400 | Leu | Ala | Arg | Asn | Ala<br>405 |
| Arg | Ile | Val | His | Leu<br>410 | Val | Glu | Glu | Thr | Arg<br>415 | Ile | His | Val | Leu | Pro<br>420 |
| Ser | Leu | Asn | Pro | Asp<br>425 | Gly | Tyr | Glu | Lys | Ala<br>430 | Tyr | Glu | Gly | Gly | Ser<br>435 |
| Glu | Leu | Gly | Gly | Trp<br>440 | Ser | Leu | Gly | Arg | Trp<br>445 | Thr | His | Asp | Gly | Ile<br>450 |
| Asp | Ile | Asn | Asn | Asn<br>455 | Phe | Pro | Asp | Leu | Asn<br>460 | Thr | Leu | Leu | Trp | Glu<br>465 |
| Ala | Glu | Asp | Arg | Gln<br>470 | Asn | Val | Pro | Arg | Lys<br>475 | Val | Pro | Asn | His | Tyr<br>480 |
| Ile | Ala | Ile | Pro | Glu<br>485 | Trp | Phe | Leu | Ser | Glu<br>490 | Asn | Ala | Thr | Val | Ala<br>495 |
| Ala | Glu | Thr | Arg | Ala        | Val | Ile | Ala | Trp | Met        | Glu | Lys | Ile | Pro | Phe        |



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<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

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<210> 65  
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<213> Homo sapiens

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cccagccccg gcttcagctc tttcccaggt gttgactcca gctccagctt 150  
cagctccagc tccaggtcgg gctccagctc cagccgcagc ttaggcagcg 200  
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<211> 510  
<212> PRT  
<213> Homo sapiens

<400> 67  
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Ser Pro Gly Phe Ser Ser Phe Pro Gly Val Asp Ser Ser Ser Ser  
35 40 45  
Phe Ser Ser Ser Ser Arg Ser Gly Ser Ser Ser Ser Arg Ser Leu  
50 55 60  
Gly Ser Gly Gly Ser Val Ser Gln Leu Phe Ser Asn Phe Thr Gly  
65 70 75  
Ser Val Asp Asp Arg Gly Thr Cys Gln Cys Ser Val Ser Leu Pro  
80 85 90  
Asp Thr Thr Phe Pro Val Asp Arg Val Glu Arg Leu Glu Phe Thr  
95 100 105  
Ala His Val Leu Ser Gln Lys Phe Glu Lys Glu Leu Ser Lys Val  
110 115 120  
Arg Glu Tyr Val Gln Leu Ile Ser Val Tyr Glu Lys Lys Leu Leu  
125 130 135  
Asn Leu Thr Val Arg Ile Asp Ile Met Glu Lys Asp Thr Ile Ser  
140 145 150  
Tyr Thr Glu Leu Asp Phe Glu Leu Ile Lys Val Glu Val Lys Glu  
155 160 165  
Met Glu Lys Leu Val Ile Gln Leu Lys Glu Ser Phe Gly Gly Ser  
170 175 180  
Ser Glu Ile Val Asp Gln Leu Glu Val Glu Ile Arg Asn Met Thr  
185 190 195  
Leu Leu Val Glu Lys Leu Glu Thr Leu Asp Lys Asn Asn Val Leu  
200 205 210

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ile | Arg | Arg | Glu | Ile | Val | Ala | Leu | Lys | Thr | Lys | Leu | Lys | Glu | 215 | 220 | 225 |
| Cys | Glu | Ala | Ser | Lys | Asp | Gln | Asn | Thr | Pro | Val | Val | His | Pro | Pro | 230 | 235 | 240 |
| Pro | Thr | Pro | Gly | Ser | Cys | Gly | His | Gly | Gly | Val | Val | Asn | Ile | Ser | 245 | 250 | 255 |
| Lys | Pro | Ser | Val | Val | Gln | Leu | Asn | Trp | Arg | Gly | Phe | Ser | Tyr | Leu | 260 | 265 | 270 |
| Tyr | Gly | Ala | Trp | Gly | Arg | Asp | Tyr | Ser | Pro | Gln | His | Pro | Asn | Lys | 275 | 280 | 285 |
| Gly | Leu | Tyr | Trp | Val | Ala | Pro | Leu | Asn | Thr | Asp | Gly | Arg | Leu | Leu | 290 | 295 | 300 |
| Glu | Tyr | Tyr | Arg | Leu | Tyr | Asn | Thr | Leu | Asp | Asp | Leu | Leu | Leu | Tyr | 305 | 310 | 315 |
| Ile | Asn | Ala | Arg | Glu | Leu | Arg | Ile | Thr | Tyr | Gly | Gln | Gly | Ser | Gly | 320 | 325 | 330 |
| Thr | Ala | Val | Tyr | Asn | Asn | Asn | Met | Tyr | Val | Asn | Met | Tyr | Asn | Thr | 335 | 340 | 345 |
| Gly | Asn | Ile | Ala | Arg | Val | Asn | Leu | Thr | Thr | Asn | Thr | Ile | Ala | Val | 350 | 355 | 360 |
| Thr | Gln | Thr | Leu | Pro | Asn | Ala | Ala | Tyr | Asn | Asn | Arg | Phe | Ser | Tyr | 365 | 370 | 375 |
| Ala | Asn | Val | Ala | Trp | Gln | Asp | Ile | Asp | Phe | Ala | Val | Asp | Glu | Asn | 380 | 385 | 390 |
| Gly | Leu | Trp | Val | Ile | Tyr | Ser | Thr | Glu | Ala | Ser | Thr | Gly | Asn | Met | 395 | 400 | 405 |
| Val | Ile | Ser | Lys | Leu | Asn | Asp | Thr | Thr | Leu | Gln | Val | Leu | Asn | Thr | 410 | 415 | 420 |
| Trp | Tyr | Thr | Lys | Gln | Tyr | Lys | Pro | Ser | Ala | Ser | Asn | Ala | Phe | Met | 425 | 430 | 435 |
| Val | Cys | Gly | Val | Leu | Tyr | Ala | Thr | Arg | Thr | Met | Asn | Thr | Arg | Thr | 440 | 445 | 450 |
| Glu | Glu | Ile | Phe | Tyr | Tyr | Tyr | Asp | Thr | Asn | Thr | Gly | Lys | Glu | Gly | 455 | 460 | 465 |
| Lys | Leu | Asp | Ile | Val | Met | His | Lys | Met | Gln | Glu | Lys | Val | Gln | Ser | 470 | 475 | 480 |
| Ile | Asn | Tyr | Asn | Pro | Phe | Asp | Gln | Lys | Leu | Tyr | Val | Tyr | Asn | Asp | 485 | 490 | 495 |
| Gly | Tyr | Leu | Leu | Asn | Tyr | Asp | Leu | Ser | Val | Leu | Gln | Lys | Pro | Gln | 500 | 505 | 510 |

<210> 68  
 <211> 410  
 <212> DNA

<213> Homo sapiens

<220>

<221> unsure

<222> 206, 217, 387

<223> unknown base

<400> 68

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ggtgaacatc agcaaaccgt ctgtggttca gctcaactgg agagggtttt 150

cttatctata tgggtgcttg ggtagggatt actctcccca gcatccaaac 200

aaaggnatgt attggngggc gccattgaat acagatggga gactgttgga 250

gtattataga ctgtacaacc cactggatga tttgctattg tatataaatg 300

ctcgagagtt gcggtacacc tatggccaag gtagtggtac agcagtttac 350

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<210> 69

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 69

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<210> 70

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

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<210> 71

<211> 42

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<400> 71

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<210> 72

<211> 3127

<212> DNA

<213> Homo sapiens

<400> 72

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tggggctgtg ctccatggcg agctggatac catgtttgtg tggaagtgcc 150  
ccgtgtttgc tatgccgatg ctgtcctagt ggaacaact ccactgtaac 200  
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taatgttgat accaggaatg gaagaacaac tgaataagat tcctggattt 300  
tgtgagaatg agaaagggtg tgtcccttgt aacattttgg ttggctataa 350  
agctgtatat cgtttgtgct ttggtttggc tatgttctat cttcttctct 400  
ctttactaat gatcaaagtg aagagtagca gtgatcctag agctgcagtg 450  
cacaatggat tttggttctt taaatttgcg gcagcaattg caattattat 500  
tggggcattc ttcattccag aaggaaactt tacaactgtg tggttttatg 550  
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 atgaattcag agaaaaaaaa aaaaaaa 3127

| Variable          | Mean | SD   | Min | Max |
|-------------------|------|------|-----|-----|
| Age               | 34.5 | 10.2 | 21  | 55  |
| Gender            | 0.5  | 0.5  | 0   | 1   |
| Marital status    | 0.6  | 0.5  | 0   | 1   |
| Education         | 12.5 | 1.5  | 9   | 16  |
| Income            | 15.2 | 5.8  | 5   | 35  |
| Occupation        | 1.2  | 0.8  | 0   | 2   |
| Health status     | 1.5  | 0.5  | 1   | 2   |
| Stress level      | 2.1  | 0.9  | 1   | 3   |
| Life satisfaction | 3.2  | 1.1  | 1   | 5   |
| Depression        | 1.8  | 0.7  | 1   | 3   |
| Loneliness        | 2.5  | 0.8  | 1   | 4   |
| Self-esteem       | 3.5  | 1.2  | 1   | 5   |
| Resilience        | 2.8  | 1.0  | 1   | 4   |
| Optimism          | 3.8  | 1.3  | 1   | 5   |
| Gratitude         | 3.0  | 1.1  | 1   | 5   |
| Forgiveness       | 3.3  | 1.2  | 1   | 5   |
| Empathy           | 3.6  | 1.1  | 1   | 5   |
| Compassion        | 3.4  | 1.2  | 1   | 5   |
| Kindness          | 3.7  | 1.1  | 1   | 5   |
| Generosity        | 3.5  | 1.2  | 1   | 5   |
| Patience          | 3.9  | 1.1  | 1   | 5   |
| Humility          | 3.6  | 1.2  | 1   | 5   |
| Modesty           | 3.8  | 1.1  | 1   | 5   |
| Meekness          | 3.7  | 1.2  | 1   | 5   |
| Gentleness        | 3.9  | 1.1  | 1   | 5   |
| Mildness          | 3.8  | 1.2  | 1   | 5   |
| Docility          | 3.7  | 1.1  | 1   | 5   |
| Submissiveness    | 3.6  | 1.2  | 1   | 5   |
| Obedience         | 3.8  | 1.1  | 1   | 5   |
| Respectfulness    | 3.9  | 1.2  | 1   | 5   |
| Politeness        | 3.7  | 1.1  | 1   | 5   |
| Courtesy          | 3.8  | 1.2  | 1   | 5   |
| Consideration     | 3.9  | 1.1  | 1   | 5   |
| Thoughtfulness    | 3.7  | 1.2  | 1   | 5   |
| Kindness          | 3.8  | 1.1  | 1   | 5   |
| Generosity        | 3.9  | 1.2  | 1   | 5   |
| Patience          | 3.7  | 1.1  | 1   | 5   |
| Humility          | 3.8  | 1.2  | 1   | 5   |
| Modesty           | 3.9  | 1.1  | 1   | 5   |
| Meekness          | 3.7  | 1.2  | 1   | 5   |
| Gentleness        | 3.8  | 1.1  | 1   | 5   |
| Mildness          | 3.9  | 1.2  | 1   | 5   |
| Docility          | 3.7  | 1.1  | 1   | 5   |
| Submissiveness    | 3.8  | 1.2  | 1   | 5   |
| Obedience         | 3.9  | 1.1  | 1   | 5   |
| Respectfulness    | 3.7  | 1.2  | 1   | 5   |
| Politeness        | 3.8  | 1.1  | 1   | 5   |
| Courtesy          | 3.9  | 1.2  | 1   | 5   |
| Consideration     | 3.7  | 1.1  | 1   | 5   |
| Thoughtfulness    | 3.8  | 1.2  | 1   | 5   |
| Kindness          | 3.9  | 1.1  | 1   | 5   |
| Generosity        | 3.7  | 1.2  | 1   | 5   |
| Patience          | 3.8  | 1.1  | 1   | 5   |
| Humility          | 3.9  | 1.2  | 1   | 5   |
| Modesty           | 3.7  | 1.1  | 1   | 5   |
| Meekness          | 3.8  | 1.2  | 1   | 5   |
| Gentleness        | 3.9  | 1.1  | 1   | 5   |
| Mildness          | 3.7  | 1.2  | 1   | 5   |
| Docility          | 3.8  | 1.1  | 1   | 5   |
| Submissiveness    | 3.9  | 1.2  | 1   | 5   |
| Obedience         | 3.7  | 1.1  | 1   | 5   |
| Respectfulness    | 3.8  | 1.2  | 1   | 5   |
| Politeness        | 3.9  | 1.1  | 1   | 5   |
| Courtesy          | 3.7  | 1.2  | 1   | 5   |
| Consideration     | 3.8  | 1.1  | 1   | 5   |
| Thoughtfulness    | 3.9  | 1.2  | 1   | 5   |
| Kindness          | 3.7  | 1.1  | 1   | 5   |
| Generosity        | 3.8  | 1.2  | 1   | 5   |
| Patience          | 3.9  | 1.1  | 1   | 5   |
| Humility          | 3.7  | 1.2  | 1   | 5   |
| Modesty           | 3.8  | 1.1  | 1   | 5   |
| Meekness          | 3.9  | 1.2  | 1   | 5   |
| Gentleness        | 3.7  | 1.1  | 1   | 5   |
| Mildness          | 3.8  | 1.2  | 1   | 5   |
| Docility          | 3.9  | 1.1  | 1   | 5   |
| Submissiveness    | 3.7  | 1.2  | 1   | 5   |
| Obedience         | 3.8  | 1.1  | 1   | 5   |
| Respectfulness    | 3.9  | 1.2  | 1   | 5   |
| Politeness        | 3.7  | 1.1  | 1   | 5   |
| Courtesy          | 3.8  | 1.2  | 1   | 5   |
| Consideration     | 3.9  | 1.1  | 1   | 5   |
| Thoughtfulness    | 3.7  | 1.2  | 1   | 5   |
| Kindness          | 3.8  | 1.1  | 1   | 5   |
| Generosity        | 3.9  | 1.2  | 1   | 5   |
| Patience          | 3.7  | 1.1  | 1   | 5   |
| Humility          | 3    |      |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Ser | Val | Leu | Gly | Leu | Cys | Ser | Met | Ala | Ser | Trp | Ile | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Cys | Leu | Cys | Gly | Ser | Ala | Pro | Cys | Leu | Leu | Cys | Arg | Cys | Cys | Pro |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ser | Gly | Asn | Asn | Ser | Thr | Val | Thr | Arg | Leu | Ile | Tyr | Ala | Leu | Phe |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Leu | Leu | Val | Gly | Val | Cys | Val | Ala | Cys | Val | Met | Leu | Ile | Pro | Gly |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Met | Glu | Glu | Gln | Leu | Asn | Lys | Ile | Pro | Gly | Phe | Cys | Glu | Asn | Glu |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Lys | Gly | Val | Val | Pro | Cys | Asn | Ile | Leu | Val | Gly | Tyr | Lys | Ala | Val |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Tyr | Arg | Leu | Cys | Phe | Gly | Leu | Ala | Met | Phe | Tyr | Leu | Leu | Leu | Ser |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Leu | Leu | Met | Ile | Lys | Val | Lys | Ser | Ser | Ser | Asp | Pro | Arg | Ala | Ala |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Val | His | Asn | Gly | Phe | Trp | Phe | Phe | Lys | Phe | Ala | Ala | Ala | Ile | Ala |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ile | Ile | Ile | Gly | Ala | Phe | Phe | Ile | Pro | Glu | Gly | Thr | Phe | Thr | Thr |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Val | Trp | Phe | Tyr | Val | Gly | Met | Ala | Gly | Ala | Phe | Cys | Phe | Ile | Leu |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ile | Gln | Leu | Val | Leu | Leu | Ile | Asp | Phe | Ala | His | Ser | Trp | Asn | Glu |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Ser | Trp | Val | Glu | Lys | Met | Glu | Glu | Gly | Asn | Ser | Arg | Cys | Trp | Tyr |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Ala | Ala | Leu | Leu | Ser | Ala | Thr | Ala | Leu | Asn | Tyr | Leu | Leu | Ser | Leu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Val | Ala | Ile | Val | Leu | Phe | Phe | Val | Tyr | Tyr | Thr | His | Pro | Ala | Ser |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Cys | Ser | Glu | Asn | Lys | Ala | Phe | Ile | Ser | Val | Asn | Met | Leu | Leu | Cys |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Val | Gly | Ala | Ser | Val | Met | Ser | Ile | Leu | Pro | Lys | Ile | Gln | Glu | Ser |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Gln | Pro | Arg | Ser | Gly | Leu | Leu | Gln | Ser | Ser | Val | Ile | Thr | Val | Tyr |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Thr | Met | Tyr | Leu | Thr | Trp | Ser | Ala | Met | Thr | Asn | Glu | Pro | Glu | Thr |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Cys | Asn | Pro | Ser | Leu | Leu | Ser | Ile | Ile | Gly | Tyr | Asn | Thr | Thr | 290 | 295 | 300 |
| Ser | Thr | Val | Pro | Lys | Glu | Gly | Gln | Ser | Val | Gln | Trp | Trp | His | Ala | 305 | 310 | 315 |
| Gln | Gly | Ile | Ile | Gly | Leu | Ile | Leu | Phe | Leu | Leu | Cys | Val | Phe | Tyr | 320 | 325 | 330 |
| Ser | Ser | Ile | Arg | Thr | Ser | Asn | Asn | Ser | Gln | Val | Asn | Lys | Leu | Thr | 335 | 340 | 345 |
| Leu | Thr | Ser | Asp | Glu | Ser | Thr | Leu | Ile | Glu | Asp | Gly | Gly | Ala | Arg | 350 | 355 | 360 |
| Ser | Asp | Gly | Ser | Leu | Glu | Asp | Gly | Asp | Asp | Val | His | Arg | Ala | Val | 365 | 370 | 375 |
| Asp | Asn | Glu | Arg | Asp | Gly | Val | Thr | Tyr | Ser | Tyr | Ser | Phe | Phe | His | 380 | 385 | 390 |
| Phe | Met | Leu | Phe | Leu | Ala | Ser | Leu | Tyr | Ile | Met | Met | Thr | Leu | Thr | 395 | 400 | 405 |
| Asn | Trp | Ser | Arg | Tyr | Glu | Pro | Ser | Arg | Glu | Met | Lys | Ser | Gln | Trp | 410 | 415 | 420 |
| Thr | Ala | Val | Trp | Val | Lys | Ile | Ser | Ser | Ser | Trp | Ile | Gly | Ile | Val | 425 | 430 | 435 |
| Leu | Tyr | Val | Trp | Thr | Leu | Val | Ala | Pro | Leu | Val | Leu | Thr | Asn | Arg | 440 | 445 | 450 |

Asp Phe Asp

<210> 74  
 <211> 480  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 48, 163  
 <223> unknown base

<400> 74  
 gcgagaaaga agctgtctcc atcttgtctg tatcccgtg cttcttgnga 50  
 cgttgtggag atggggagcg tccctggggc tgtgtccat ggcgagctgg 100  
 ataccatgtt tgtgtggaag tgccccgtg ttgctatgcc gatgctgtcc 150  
 tagtggaac aantccactg taactagatt gatctatgca cttttcttgc 200  
 ttgttgagat atgtgtagct tgtgtaatgt tgataccagg aatggaagaa 250  
 caactgaata agattcctgg attttgtgag aatgagaaag gtgttgtccc 300  
 ttgtaacatt ttggttggt ataaagctgt atatcgtttg tgctttgggt 350  
 tggtatgtt ctatcttctt ctctctttac taatgatcaa agtgaagagt 400

agcagtgatc ctagagctgc agtgcacaat ggattttggt tottttaaatt 450  
tgctgcagca attgcaatta ttattggggc 480

<210> 75  
<211> 438  
<212> DNA  
<213> Homo sapiens

<220>  
<221> unsure  
<222> 32, 65, 92, 121, 142, 154, 170, 293, 315, 323  
<223> unknown base

<400> 75  
gttattgtga actttgtgga gatgggaggt cntggggctg tgttccatgg 50  
cgagctggat accangtttg tgtggaagtg ccccggtgtt gntatgccga 100  
tgctgtccta gtggaacaaa ntccactgta attagattga tntatgcact 150  
tttnttgctt gttggagtan gtgtagcttg tgtaatgttg ataccaggaa 200  
tggaagaaca actgaataag attcctggat tttgtgagaa tgagaaaggt 250  
gttgtccctt gtaacatttt gggtggctat aaagctgtat atngtttgtg 300  
ctttggtttg gctangttct atnttcttct ctctttacta atgatcaaag 350  
tgaagagtag cagtgatcct agagctgcag tgcacaatgg attttggttt 400  
tttaaatttg ctgcagcaat tgcaattatt attggggc 438

<210> 76  
<211> 473  
<212> DNA  
<213> Homo sapiens

<220>  
<221> unsure  
<222> 48  
<223> unknown base

<400> 76  
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gagatgggga gcgtccttgg ggttgtgctc catggcgagc tggataccat 100  
gtttgtgtgg aagtgtcccg tgtttgctat gccgatgctg tcctagtggg 150  
aacaactcca ctgtaactag attgatctat gcacttttct tgcttggttg 200  
agtatgtgta gcttggtgaa tgttgatacc aggaatggaa gaacaactga 250  
ataagattcc tggattttgt gagaatgaga aaggtgttgt cccttgtaac 300  
attttggttg gctataaagc tgtatatcgt ttgtgctttg gtttggctat 350  
gttctatctt cttctctctt tactaatgat caaagtgaag agtagcagtg 400  
atcctagagc tgcagtgcac aatggatttt ggttctttta atttgctgca 450  
gcaattgcaa ttattattgg ggc 473



<210> 77  
<211> 666  
<212> DNA  
<213> Homo sapiens

<220>  
<221> unsure  
<222> 21, 111  
<223> unknown base

<400> 77  
gctgtcctta gtggaacaa ntccaacttg taacttggat tgatctatgc 50  
actttttcct tgcttggttg agtatgtgta gctttgtgta atgttggtcc 100  
caggattgga ngaacaactg aataagattc ctggattttt gtgagaatga 150  
gaaaggtggt gtcccttgt aacatttttg gttggctata aagctgtata 200  
tcgtttgtgc tttgggttggt ctatgttcta tcttcttctc tctttactaa 250  
tgatcaaagt gaagagtagc agtgatccta gagctgcagt gcacaatgga 300  
ttttggttct ttaaatttgc tgcagcaatt gcaattatta ttggggcatt 350  
cttcattcca gaaggaaactt ttacaactgt gtgggttttat gtaggcatgg 400  
cagggtgcctt ttgtttcatc ctcatacaac tagtcttact tattgatttt 450  
gcacattcat ggaatgaatc gtggggttgaa aaaatggaag aagggaactc 500  
gagatgttgg tatgcagcct tgttatcagc tacagctctg aattatctgc 550  
tgtctttagt tgctatcgtc ctgttctttg tctactacac tcatccagcc 600  
agttgttcag aaaacaaggc gttcatcagt gtcaacatgc tcctctgcgt 650  
tggtgcttct gtaatg 666

<210> 78  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 78  
atgtttgtgt ggaagtgtccc cg 22

<210> 79  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 79  
gtcaacatgc tcctctgc 18

<210> 80  
<211> 26

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 80  
aatccattgt gcactgcagc tctagg 26

<210> 81  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 81  
gagcatgccca ccaactggact gac 23

<210> 82  
<211> 54  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 82  
gccgatgctg tcctagtggga aacaactcca ctgtaactag attgatctat 50

gcac 54

<210> 83  
<211> 3906  
<212> DNA  
<213> Homo sapiens

<400> 83  
ctcgggcgcg cacaggcagc tcggtttgcc ctgcgattga gctgcggggtc 50  
gcgggccggcg ccggcctctc caatggcaaa tgtgtgtggc tggaggcgag 100  
cgcgaggctt tcggcaaagg cagtcgagtg tttgcagacc ggggagagtc 150  
ctgtgaaagc agataaaaga aaacatttat taacgtgtca ttacgagggg 200  
agcgcccggc cggggctgtc gcactccccg cggaacattt ggctccctcc 250  
agctccgaga gaggagaaga agaaagcgga aaagaggcag attcacgtcg 300  
tttccagcca agtggacctg atcgatggcc ctctgaatt tatcacgata 350  
tttgatttat tagcgatgcc ccctggtttg tgtgttacgc acacacacgt 400  
gcacacaagg ctctggctcg cttccctccc togtttccag ctctggggcg 450  
aatcccacat ctgtttcaac tctccgccga gggcgagcag gagcgagagt 500  
gtgtcgaatc tgcgagtga gagggacgag ggaaaagaaa caaagccaca 550  
gacgcaactt gagactcccc catccccaaa gaagcaccag atcagcaaaa 600

aaagaagatg ggccccccga gcctcgtgct gtgcttgctg tccgcaactg 650  
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 aaaggcaggt ttcagaggga ccgcaggaac atccgccccca acatcatcct 750  
 ggtgctgacg gacgaccagg atgtggagct gggttccatg caggatgatga 800  
 acaagacccg gcgcatcatg gagcagggcg gggcgcaactt catcaacgcc 850  
 ttogtgacca caccatgtg ctgcccctca cgctcctcca tcctcactgg 900  
 caagtacgtc cacaaccaca acacctacac caacaatgag aactgctcct 950  
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 aatagcactg gctaccggac agctttcttc ggggaagtatc ttaatgaata 1050  
 caacggctcc tacgtgccac ccggctggaa ggagtgggtc ggactcctta 1100  
 aaaactcccg cttttataac tacacgctgt gtcggaacgg ggtgaaagag 1150  
 aagcacgggt ccgactactc caaggattac ctcacagacc tcatcaccaa 1200  
 tgacagcgtg agctttcttc gcacgtccaa gaagatgtac ccgcacaggc 1250  
 cagtccctcat ggtcatcagc catgcagccc cccacggccc tgaggattca 1300  
 gccccacaat attcagcct cttcccaaac gcattctcagc acatcacgcc 1350  
 gagctacaac tacgcgccc aaccggacaa aactggatc atgcgctaca 1400  
 cggggcccat gaagcccatc cacatggaat tcaccaacat gctccagcgg 1450  
 aagcgcttgc agaccctcat gtgggtggac gactccatgg agacgattta 1500  
 caacatgctg gttgagacgg gcgagctgga caacacgtac atcgtataca 1550  
 ccgccgacca cggttaccac atcggccagt ttggcctggt gaaagggaaa 1600  
 tccatgccat atgagtttga catcagggtc ccgttctacg tgagggggccc 1650  
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 agagaggcaa gctgctacac aagagagaca atgacaagggt ggacgcccag 1900  
 gaggagaact ttctgcccga gtaccagcgt gtgaaggacc tgtgtcagcg 1950  
 tgctgagtac cagacggcgt gtgagcagct gggacagaag tggcagtgtg 2000  
 tggaggacgc cacggggaag ctgaagctgc ataagtcaa gggcccatg 2050  
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gtccgcagtc gctccatccg ctcaagtggcc atcgaggtgg acggcaggggt 2250  
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tcagctacca caccagcac aaaggccgcc tcaagcacag aggtccagt 2650  
ctgcatcctt tcaggaaggg cctgcaagag aaggacaagg tgtggctgtt 2700  
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gggaagggtta agaaacaaca gaggtggacc tccaaaaaca tagaggcatc 3250  
acctgactgc acaggcaatg aaaaaccatg tgggtgattt ccagcagacc 3300  
tgtgctattg gccaggaggc ctgagaaagc aagcacgcac tctcagtcaa 3350  
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aagaagcagg acagaggcaa cgtggagagg ctgaaaacag tgcagagacg 3700  
tttgacaatg agtcagtagc acaaaagaga tgacatttac ctagcactat 3750  
aaaccctggg tgctctgaa gaaactgcct tcattgtata tatgtgacta 3800

tttacatgta atcaacatgg gaacttttag gggaacctaa taagaaatcc 3850  
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 gaaaaa 3906

<210> 84  
 <211> 867  
 <212> PRT  
 <213> Homo sapiens

<400> 84  
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 Phe Ser Leu Leu Gly Gly Ser Ser Ala Phe Leu Ser His His Arg  
 20 25 30  
 Leu Lys Gly Arg Phe Gln Arg Asp Arg Arg Asn Ile Arg Pro Asn  
 35 40 45  
 Ile Ile Leu Val Leu Thr Asp Asp Gln Asp Val Glu Leu Gly Ser  
 50 55 60  
 Met Gln Val Met Asn Lys Thr Arg Arg Ile Met Glu Gln Gly Gly  
 65 70 75  
 Ala His Phe Ile Asn Ala Phe Val Thr Thr Pro Met Cys Cys Pro  
 80 85 90  
 Ser Arg Ser Ser Ile Leu Thr Gly Lys Tyr Val His Asn His Asn  
 95 100 105  
 Thr Tyr Thr Asn Asn Glu Asn Cys Ser Ser Pro Ser Trp Gln Ala  
 110 115 120  
 Gln His Glu Ser Arg Thr Phe Ala Val Tyr Leu Asn Ser Thr Gly  
 125 130 135  
 Tyr Arg Thr Ala Phe Phe Gly Lys Tyr Leu Asn Glu Tyr Asn Gly  
 140 145 150  
 Ser Tyr Val Pro Pro Gly Trp Lys Glu Trp Val Gly Leu Leu Lys  
 155 160 165  
 Asn Ser Arg Phe Tyr Asn Tyr Thr Leu Cys Arg Asn Gly Val Lys  
 170 175 180  
 Glu Lys His Gly Ser Asp Tyr Ser Lys Asp Tyr Leu Thr Asp Leu  
 185 190 195  
 Ile Thr Asn Asp Ser Val Ser Phe Phe Arg Thr Ser Lys Lys Met  
 200 205 210  
 Tyr Pro His Arg Pro Val Leu Met Val Ile Ser His Ala Ala Pro  
 215 220 225  
 His Gly Pro Glu Asp Ser Ala Pro Gln Tyr Ser Arg Leu Phe Pro  
 230 235 240  
 Asn Ala Ser Gln His Ile Thr Pro Ser Tyr Asn Tyr Ala Pro Asn  
 245 250 255

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Asp | Lys | His | Trp | Ile | Met | Arg | Tyr | Thr | Gly | Pro | Met | Lys | Pro | 260 | 265 | 270 |
| Ile | His | Met | Glu | Phe | Thr | Asn | Met | Leu | Gln | Arg | Lys | Arg | Leu | Gln | 275 | 280 | 285 |
| Thr | Leu | Met | Ser | Val | Asp | Asp | Ser | Met | Glu | Thr | Ile | Tyr | Asn | Met | 290 | 295 | 300 |
| Leu | Val | Glu | Thr | Gly | Glu | Leu | Asp | Asn | Thr | Tyr | Ile | Val | Tyr | Thr | 305 | 310 | 315 |
| Ala | Asp | His | Gly | Tyr | His | Ile | Gly | Gln | Phe | Gly | Leu | Val | Lys | Gly | 320 | 325 | 330 |
| Lys | Ser | Met | Pro | Tyr | Glu | Phe | Asp | Ile | Arg | Val | Pro | Phe | Tyr | Val | 335 | 340 | 345 |
| Arg | Gly | Pro | Asn | Val | Glu | Ala | Gly | Cys | Leu | Asn | Pro | His | Ile | Val | 350 | 355 | 360 |
| Leu | Asn | Ile | Asp | Leu | Ala | Pro | Thr | Ile | Leu | Asp | Ile | Ala | Gly | Leu | 365 | 370 | 375 |
| Asp | Ile | Pro | Ala | Asp | Met | Asp | Gly | Lys | Ser | Ile | Leu | Lys | Leu | Leu | 380 | 385 | 390 |
| Asp | Thr | Glu | Arg | Pro | Val | Asn | Arg | Phe | His | Leu | Lys | Lys | Lys | Met | 395 | 400 | 405 |
| Arg | Val | Trp | Arg | Asp | Ser | Phe | Leu | Val | Glu | Arg | Gly | Lys | Leu | Leu | 410 | 415 | 420 |
| His | Lys | Arg | Asp | Asn | Asp | Lys | Val | Asp | Ala | Gln | Glu | Glu | Asn | Phe | 425 | 430 | 435 |
| Leu | Pro | Lys | Tyr | Gln | Arg | Val | Lys | Asp | Leu | Cys | Gln | Arg | Ala | Glu | 440 | 445 | 450 |
| Tyr | Gln | Thr | Ala | Cys | Glu | Gln | Leu | Gly | Gln | Lys | Trp | Gln | Cys | Val | 455 | 460 | 465 |
| Glu | Asp | Ala | Thr | Gly | Lys | Leu | Lys | Leu | His | Lys | Cys | Lys | Gly | Pro | 470 | 475 | 480 |
| Met | Arg | Leu | Gly | Gly | Ser | Arg | Ala | Leu | Ser | Asn | Leu | Val | Pro | Lys | 485 | 490 | 495 |
| Tyr | Tyr | Gly | Gln | Gly | Ser | Glu | Ala | Cys | Thr | Cys | Asp | Ser | Gly | Asp | 500 | 505 | 510 |
| Tyr | Lys | Leu | Ser | Leu | Ala | Gly | Arg | Arg | Lys | Lys | Leu | Phe | Lys | Lys | 515 | 520 | 525 |
| Lys | Tyr | Lys | Ala | Ser | Tyr | Val | Arg | Ser | Arg | Ser | Ile | Arg | Ser | Val | 530 | 535 | 540 |
| Ala | Ile | Glu | Val | Asp | Gly | Arg | Val | Tyr | His | Val | Gly | Leu | Gly | Asp | 545 | 550 | 555 |
| Ala | Ala | Gln | Pro | Arg | Asn | Leu | Thr | Lys | Arg | His | Trp | Pro | Gly | Ala | 560 | 565 | 570 |



<213> Artificial Sequence  
 <220>  
 <223> Synthetic oligonucleotide probe  
 <400> 85  
 gaagccggct gtctgaatc 19  
 <210> 86  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Synthetic oligonucleotide probe  
 <400> 86  
 ggccagctat ctccgcag 18  
 <210> 87  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Synthetic oligonucleotide probe  
 <400> 87  
 aagggcctgc aagagaag 18  
 <210> 88  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Synthetic oligonucleotide probe  
 <400> 88  
 cactgggaca actgtggg 18  
 <210> 89  
 <211> 18  
 <212> DNA  
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 <223> Synthetic oligonucleotide probe  
 <400> 89  
 cagaggcaac gtggagag 18  
 <210> 90  
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 <212> DNA  
 <213> Artificial Sequence  
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 <223> Synthetic oligonucleotide probe  
 <400> 90  
 aagtattgtc atacagtgtt c 21



<210> 91  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 91  
tagtacttgg gcacgaggtt ggag 24

<210> 92  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 92  
tcataccaac tgctggtcat tggc 24

<210> 93  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 93  
ctcaagctgc tggacacgga gcggccggtg aatcggtttc acttg 45

<210> 94  
<211> 971  
<212> DNA  
<213> Homo sapiens

<400> 94  
aacaaagtgc agtgactgag agggctgagc ggaggctgct gaaggggaga 50  
aaggagtgag gagctgctgg gcagagaggg actgtccggc tcccagatgc 100  
tgggcctcct ggggagcaca gccctcgtgg gatggatcac aggtgctgct 150  
gtggcggtcc tgctgctgct gctgctgctg gccacctgcc tttccacgg 200  
acggcaggac tgtgacgtgg agaggaaccg tacagctgca gggggaaacc 250  
gagtccgccc ggcccagcct tggcccttcc ggcggcgggg ccacctggga 300  
atctttcacc atcacctgca tcctggccac gtatctcatg tgccgaatgt 350  
gggcctccac caccaccacc acccccgcca caccctcac cacctccacc 400  
accaccacca cccccaccgc caccatcccc gccacgctcg ctgaggctgc 450  
tgtcgccggt gcctgtggac agcagctgcc cctgccctcc catctgttcc 500  
caggacaagt ggaccccatg tttccatgtg gaaggatgca tctctgggg 550  
gaacgagggg aacaatagac tggggcttgc tccagctgca tttgcatggc 600

atgccccagt gtactatggc agcagagaat ggaggaacac tgggtctgca 650  
 gtgctgaagg gtttggggag tggagagcaa ggggtgctctt tcgggggctgg 700  
 acagcccgtc ttgtgacagt gactcccagt gagccccaga aatgacaagc 750  
 gtgtcttggc agagccagca cacaagtgga tgtgaagtgc ccgtcttgac 800  
 ctctcatca ggctgctgca ggcctctggc gggcagggca ctgggagagg 850  
 ccctgagaat gtccttttgg tttggagaag gcagtgtgag gctgcacagt 900  
 caattcatcg gtgccttagt ccaagaaaat aaaaaccact aagaagcttt 950  
 aaaaaaaaaa aaaaaaaaaa a 971

<210> 95  
 <211> 115  
 <212> PRT  
 <213> Homo sapiens

<400> 95  
 Met Leu Gly Leu Leu Gly Ser Thr Ala Leu Val Gly Trp Ile Thr  
     1                    5                    10                    15  
 Gly Ala Ala Val Ala Val Leu Leu Leu Leu Leu Leu Leu Ala Thr  
                     20                    25                    30  
 Cys Leu Phe His Gly Arg Gln Asp Cys Asp Val Glu Arg Asn Arg  
                     35                    40                    45  
 Thr Ala Ala Gly Gly Asn Arg Val Arg Arg Ala Gln Pro Trp Pro  
                     50                    55                    60  
 Phe Arg Arg Arg Gly His Leu Gly Ile Phe His His His Arg His  
                     65                    70                    75  
 Pro Gly His Val Ser His Val Pro Asn Val Gly Leu His His His  
                     80                    85                    90  
 His His Pro Arg His Thr Pro His His Leu His His His His His  
                     95                    100                    105  
 Pro His Arg His His Pro Arg His Ala Arg  
                     110                    115

<210> 96  
 <211> 1312  
 <212> DNA  
 <213> Homo sapiens

<400> 96  
 ggcggctgct gagctgcctt gaggtgcagt gttggggatc cagagccatg 50  
 tcggacctgc tactactggg cctgattggg ggcctgactc tcttactgct 100  
 gctgacgctg ctggcctttg ccgggtactc agggctactg gctgggggtg 150  
 aagtgagtgc tgggtcaccc cccatccgca acgtcactgt ggcctacaag 200  
 ttccacatgg ggctctatgg tgagactggg cggcttttca ctgagagctg 250  
 cagcatctct cccaagctcc gctccatcgc tgtctactat gacaaccccc 300

acatggtgcc ccctgataag tgccgatgtg ccgtgggcag catcctgagt 350  
gaaggtgagg aatcgccctc ccctgagctc atcgacctct accagaaatt 400  
tggtttcaag gtgtttctct tcccggcacc cagccatgtg gtgacagcca 450  
ccttccccta caccaccatt ctgtccatct ggctggctac ccgccgtgtc 500  
catcctgcct tggacaccta catcaaggag cggaagctgt gtgcctatcc 550  
tcgggtggag atctaccagg aagaccagat ccatttcatg tgcccactgg 600  
caoggcaggg agacttctat gtgcctgaga tgaaggagac agagtggaaa 650  
tggcgggggc ttgtggaggc cattgacacc caggtggatg gcacaggagc 700  
tgacacaatg agtgacacga gttctgtaag cttggaagtg agccctggca 750  
gccgggagac ttcagctgcc acactgtcac ctggggcgag cagccgtggc 800  
tgggatgacg gtgacacccg cagcgagcac agctacagcg agtcaggatg 850  
cagcggctcc ttttttgagg agctggactt ggagggcgag gggcccttag 900  
gggagtcacg gctggaccct gggactgagc ccctggggac taccaagtgg 950  
ctctgggagc ccactgcccc tgagaagggc aaggagtaac ccatggcctg 1000  
caccctcctg cagtgcagtt gctgaggaac tgagcagact ctccagcaga 1050  
ctctccagcc ctcttccctc ttctctggg ggaggagggg ttcttgaggg 1100  
acctgacttc ccctgctcca ggcctcttgc taagccttct cctcactgcc 1150  
ctttaggctc ccagggccag aggagccagg gactattttc tgcaccagcc 1200  
cccagggctg ccgcccctgt tgtgtctttt tttcagactc acagtggagc 1250  
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aaaaaaaaaa aa 1312

<210> 97

<211> 313

<212> PRT

<213> Homo sapiens

<400> 97

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Asp | Leu | Leu | Leu | Leu | Gly | Leu | Ile | Gly | Gly | Leu | Thr | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Leu | Leu | Leu | Thr | Leu | Leu | Ala | Phe | Ala | Gly | Tyr | Ser | Gly | Leu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Leu | Ala | Gly | Val | Glu | Val | Ser | Ala | Gly | Ser | Pro | Pro | Ile | Arg | Asn |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Val | Thr | Val | Ala | Tyr | Lys | Phe | His | Met | Gly | Leu | Tyr | Gly | Glu | Thr |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Gly | Arg | Leu | Phe | Thr | Glu | Ser | Cys | Ser | Ile | Ser | Pro | Lys | Leu | Arg |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |

Ser Ile Ala Val Tyr Tyr Asp Asn Pro His Met Val Pro Pro Asp  
80 85 90

Lys Cys Arg Cys Ala Val Gly Ser Ile Leu Ser Glu Gly Glu Glu  
95 100 105

Ser Pro Ser Pro Glu Leu Ile Asp Leu Tyr Gln Lys Phe Gly Phe  
110 115 120

Lys Val Phe Ser Phe Pro Ala Pro Ser His Val Val Thr Ala Thr  
125 130 135

Phe Pro Tyr Thr Thr Ile Leu Ser Ile Trp Leu Ala Thr Arg Arg  
140 145 150

Val His Pro Ala Leu Asp Thr Tyr Ile Lys Glu Arg Lys Leu Cys  
155 160 165

Ala Tyr Pro Arg Leu Glu Ile Tyr Gln Glu Asp Gln Ile His Phe  
170 175 180

Met Cys Pro Leu Ala Arg Gln Gly Asp Phe Tyr Val Pro Glu Met  
185 190 195

Lys Glu Thr Glu Trp Lys Trp Arg Gly Leu Val Glu Ala Ile Asp  
200 205 210

Thr Gln Val Asp Gly Thr Gly Ala Asp Thr Met Ser Asp Thr Ser  
215 220 225

Ser Val Ser Leu Glu Val Ser Pro Gly Ser Arg Glu Thr Ser Ala  
230 235 240

Ala Thr Leu Ser Pro Gly Ala Ser Ser Arg Gly Trp Asp Asp Gly  
245 250 255

Asp Thr Arg Ser Glu His Ser Tyr Ser Glu Ser Gly Ala Ser Gly  
260 265 270

Ser Ser Phe Glu Glu Leu Asp Leu Glu Gly Glu Gly Pro Leu Gly  
275 280 285

Glu Ser Arg Leu Asp Pro Gly Thr Glu Pro Leu Gly Thr Thr Lys  
290 295 300

Trp Leu Trp Glu Pro Thr Ala Pro Glu Lys Gly Lys Glu  
305 310

<210> 98  
<211> 725  
<212> DNA  
<213> Homo sapiens

<400> 98  
ccgcgggaac gctgtcctgg ctgccgccac ccgaacagcc tgtcctggtg 50  
ccccggctcc ctgccccgcg ccagtcattg accctgcgcc cctcactcct 100  
cccgtccat ctgtgtgtgc tgtgtgtgt cagtgcggcg gtgtgccggg 150  
ctgaggctgg gctcgaaacc gaaagtcccg tccggaccct ccaagtggag 200  
accctggtgg agccccaga accatgtgcc gagcccgctg cttttggaga 250

cacgcttcac atacactaca cgggaagctt ggtagatgga cgtattattg 300  
 acacctccct gaccagagac cctctgggta tagaacttgg ccaaaagcag 350  
 gtgattccag gtctggagca gagtcttctc gacatgtgtg tgggagagaa 400  
 gcgaagggca atcattccct ctcacttggc ctatggaaaa cggggatttc 450  
 caccatctgt cccagcggat gcagtgggag agtatgacgt ggagctgatt 500  
 gcactaatcc gagccaacta ctggctaaag ctgggtgaagg gcattttgcc 550  
 tctggtaggg atggccatgg tgccagccct cctgggcctc attgggtatc 600  
 acctatacag aaaggccaat agacccaaag tctccaaaaa gaagctcaag 650  
 gaagagaaac gaaacaagag caaaaagaaa taataaataa taaattttaa 700  
 aaaacttaaa aaaaaaaaaa aaaaa 725

<210> 99  
 <211> 201  
 <212> PRT  
 <213> Homo sapiens

<400> 99  
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 1 5 10  
 Leu Leu Leu Ser Ala Ala Val Cys Arg Ala Glu Ala Gly Leu Glu 30  
 20 25  
 Thr Glu Ser Pro Val Arg Thr Leu Gln Val Glu Thr Leu Val Glu 45  
 35 40  
 Pro Pro Glu Pro Cys Ala Glu Pro Ala Ala Phe Gly Asp Thr Leu 60  
 50 55  
 His Ile His Tyr Thr Gly Ser Leu Val Asp Gly Arg Ile Ile Asp 75  
 65 70  
 Thr Ser Leu Thr Arg Asp Pro Leu Val Ile Glu Leu Gly Gln Lys 90  
 80 85  
 Gln Val Ile Pro Gly Leu Glu Gln Ser Leu Leu Asp Met Cys Val 105  
 95 100  
 Gly Glu Lys Arg Arg Ala Ile Ile Pro Ser His Leu Ala Tyr Gly 120  
 110 115  
 Lys Arg Gly Phe Pro Pro Ser Val Pro Ala Asp Ala Val Val Gln 135  
 125 130  
 Tyr Asp Val Glu Leu Ile Ala Leu Ile Arg Ala Asn Tyr Trp Leu 150  
 140 145  
 Lys Leu Val Lys Gly Ile Leu Pro Leu Val Gly Met Ala Met Val 165  
 155 160  
 Pro Ala Leu Leu Gly Leu Ile Gly Tyr His Leu Tyr Arg Lys Ala 180  
 170 175  
 Asn Arg Pro Lys Val Ser Lys Lys Lys Leu Lys Glu Glu Lys Arg

Asn Lys Ser Lys Lys Lys  
200

<210> 100  
<211> 705  
<212> DNA  
<213> Homo sapiens

<400> 100  
cccggaacg tgttcctggc tgccgcaccc gaacagcctg tcctgggtgcc 50  
ccggctccct gccccgcgcc cagtcacgac cctgcgcccc tcaactcctcc 100  
cgctccatct gctgctgctg ctgctgctca gtgcggcggt gtgcggggct 150  
gaggctgggc tcgaaaccga aagtcccgtc cggaccctcc aagtggagac 200  
cctgggtggag cccccagaac catgtgccga gcccgctgct tttggagaca 250  
cgcttcacat aactacacg ggaagcttgg tagatggacg tattattgac 300  
acctccctga ccagagaccc tctggttata gaacttggcc aaaagcaggt 350  
gattccaggt ctggagcaga gtcttctcga catgtgtgtg ggagagaagc 400  
gaagggcaat cattccttct cacttggcct atggaaaacg gggatttcca 450  
ccatctgtcc cagcggatgc agtgggtgcag tatgacgtgg agctgattgc 500  
actaatccga gccaaactact ggctaaagct ggtgaagggc attttgctc 550  
tggtagggat ggccatggtg ccaccctcct gggcctcatt gggatatcacc 600  
tatacagaaa ggccaataga cccaaagtct ccaaaaagaa gctcaaggaa 650  
gagaaaacgaa acaagagcaa aaagaaataa taaataataa atttttaaaaa 700  
actta 705

<210> 101  
<211> 543  
<212> DNA  
<213> Homo sapiens

<400> 101  
ccgaaagtcc cgtccggacc ctccaagtgg agaccctggt ggagccccca 50  
gaaccatgtg ccgagcccgcc tgcttttggg gacacgcttc acatacacta 100  
cacgggaagc ttggtagatg gacgtattat tgacacctcc ctgaccagag 150  
accctctggt tatagaactt ggccaaaagc aggtgattcc aggtctggag 200  
cagagtcttc tcgacatgtg tgtgggagag aagcgaaggg caatcattcc 250  
ttctcacttg gcctatggaa aacggggatt tccaccatct gtcccagcgg 300  
atgcagtggg gcagtatgac gtggagctga ttgcactaat ccgagccaac 350  
tactggctaa agctgggtgaa gggcattttg cctctggtag ggatggccat 400

ggtgccagcc ctcctgggcc tcattgggta tcacctatac agaaaggcca 450  
 atagacccaa agtctccaaa aagaagctca aggaagagaa acgaaacaag 500  
 agcaaaaaga aataataaat aataaat tttt aaaaaactta aaa 543

<210> 102  
 <211> 1316  
 <212> DNA  
 <213> Homo sapiens

<400> 102  
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 aaatcggggg agtgaggcgg gccggcgcg cgcgacaccg ggctccggaa 100  
 ccactgcacg acggggctgg actgacctga aaaaaatgtc tggatttcta 150  
 gagggcttga gatgctcaga atgcattgac tggggggaaa agcgcaatac 200  
 tattgcttcc attgctgctg gtgtactatt ttttacaggc tgggtggatta 250  
 tcatagatgc agctgttatt tatccacca tgaaagattt caaccactca 300  
 taccatgcct gtggtgttat agcaaccata gccttcctaa tgattaatgc 350  
 agtatcgaat ggacaagtcc gaggtgatag ttacagtga gggtgtcttg 400  
 gtcaaacagg tgctcgcat tggcttttcg ttggtttcat gttggccttt 450  
 ggatctctga ttgcatctat gtggattcct tttggagggt atgttgctaa 500  
 agaaaaagac atagtatacc ctggaattgc tgtatttttc cagaatgcct 550  
 tcatcttttt tggagggtcg gtttttaagt ttggccgcac tgaagactta 600  
 tggcagtga cacatctgat ttcccacagc acaacagccc tgcattgggt 650  
 tgtttgtttt tttactgctc actcccaacc ttttgtaatg ccattttcta 700  
 aacttatttc tgagtgtagt ctgagcttaa agttgtgtaa tactaaaatc 750  
 acgagaacac ctaaacaaca accaaaaatc tattgtggta tgcacttgat 800  
 taacttataa aatgttagag gaaactttca catgaataat ttttgtcaaa 850  
 ttttatcatg gtataatttg taaaaataaa aagaaattac aaaagaaatt 900  
 atggatttgt caatgtaagt atttgtcata tctgagggtcc aaaaccacaa 950  
 tgaaagtgt ctgaagattt aatgtgttta ttcaaattgt gtctcttctg 1000  
 tgtcaaattg taaatgaaat ataaacattt tttagttttt aaaatattcc 1050  
 gtggtcaaaa ttcttcctca ctataattgg tatttacttt taccaaaaat 1100  
 tctgtgaaca tgtaatgtaa ctggcttttg agggctctcc aaggggtgag 1150  
 tggacgtgtt ggaagagaga agcaccatgg tccagccacc aggtccctg 1200  
 tgtcccttcc atgggaaggt cttccgctgt gcctctcatt ccaagggcag 1250  
 gaagatgtga ctgagccatg acacgtgggt ctggtgggat gcacagtcac 1300

tccacatcca ccactg 1316

<210> 103

<211> 157

<212> PRT

<213> Homo sapiens

<400> 103

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Trp Gly Glu Lys Arg Asn Thr Ile Ala Ser Ile Ala Ala Gly Val  
20 25 30  
Leu Phe Phe Thr Gly Trp Trp Ile Ile Ile Asp Ala Ala Val Ile  
35 40 45  
Tyr Pro Thr Met Lys Asp Phe Asn His Ser Tyr His Ala Cys Gly  
50 55 60  
Val Ile Ala Thr Ile Ala Phe Leu Met Ile Asn Ala Val Ser Asn  
65 70 75  
Gly Gln Val Arg Gly Asp Ser Tyr Ser Glu Gly Cys Leu Gly Gln  
80 85 90  
Thr Gly Ala Arg Ile Trp Leu Phe Val Gly Phe Met Leu Ala Phe  
95 100 105  
Gly Ser Leu Ile Ala Ser Met Trp Ile Leu Phe Gly Gly Tyr Val  
110 115 120  
Ala Lys Glu Lys Asp Ile Val Tyr Pro Gly Ile Ala Val Phe Phe  
125 130 135  
Gln Asn Ala Phe Ile Phe Phe Gly Gly Leu Val Phe Lys Phe Gly  
140 145 150  
Arg Thr Glu Asp Leu Trp Gln  
155

<210> 104

<211> 545

<212> DNA

<213> Homo sapiens

<400> 104

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tggatttcta gagggcttga gatgctcaga atgcattgac tggggggaaa 150  
agcgcaatac tattgcttcc attgctgctg gtgtactatt ttttacaggc 200  
tgggtggatta tcatagatgc agctgttatt tatccacca tgaaagattt 250  
caaccactca taccatgcct gtgggtgttat agcaaccata gccttcctaa 300  
tgattaatgc agtatcgaat ggacaagtcc gaggtgatag ttacagtga 350  
ggttgtctgg gtcaaacagg tgctcgcat tggcttttcg ttggtttcat 400



gttggccttt ggatctctga ttgcatctat gtggattctt tttggagggtt 450  
 atgttgctaa agaaaaagac atagtataacc ctggaattgc tgtatttttc 500  
 cagaatgcct tcatcttttt tggagggctg gtttttaagt ttggc 545

<210> 105  
 <211> 490  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 31, 39, 108, 145, 179, 219, 412, 479  
 <223> unknown base

<400> 105  
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 agaatgcatg actgggggaa aagcgcaaat actattgctt ccattgctgc 100  
 tgggtgtanta ttttttacag gctggtggat tatcatagat gcagntgtta 150  
 tttatccac catgaaagat ttcaaccant cataccatgc ctgtggtgtt 200  
 atagcaacca tagccttcnt aatgattaat gcagtatcga atggacaagt 250  
 ccgaggtgat agttacagt aaggttggtt gggtaaaca ggtgctcgca 300  
 tttggctttt cgttggtttc atgttggcct ttggatctct gattgcatct 350  
 atgtggattc tttttggagg ttatgttgct aaagaaaaag acatagtata 400  
 ccttgaatt gntgtatttt tccagaatgc cttcatcttt tttggagggc 450  
 tggtttttaa gtttggccgc actgaagant tatggcagtg 490

<210> 106  
 <211> 466  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 26, 38, 81, 115, 207, 329, 380, 446, 449  
 <223> unknown base

<400> 106  
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 aatgttttga ttttttagagg gcttgagatg ntcagaatgc attgactggg 100  
 ggaaaagcgc aatantattg ctttccattg ctgctggtgt actatttttt 150  
 acaggggtgg ggattatcat agatgcagct gttatttatc ccacatgaa 200  
 agatttnaac cactcatacc atgcctgtgg tgttatagca accatagcct 250  
 tcctaattgat taatgcagta tcgaatggac aagtcagagg tgatagttac 300  
 agtgaagggt gtttgggtca aacaggtgnt cgcatttggc ttttcgttgg 350  
 tttcatgttg gcctttggat ttctgattgn attctatgcg gattcttctt 400

ggagggttatg ttgctaaaga aaaagacata gtataccctg gaattnctnt 450

atccccccag aatgcc 466

<210> 107

<211> 377

<212> DNA

<213> Homo sapiens

<220>

<221> unsure

<222> 52, 67, 70, 78, 105, 144, 150, 209, 266, 268, 282, 310, 331, 356

<223> unknown base

<400> 107

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antattgctt ccattgntgn tgggtgnta tttttttaca ggctgggtgga 100

ttatnataga tgcagctgtt atttatccca ccatgaaaga tttnaaccan 150

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tgggtcaaac aggtgntngc atttggcttt tngttggttt catgttggcc 300

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<211> 552

<212> DNA

<213> Homo sapiens

<220>

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<222> 12, 25, 65, 130, 437, 537

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<400> 108

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<400> 109  
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<223> Synthetic oligonucleotide probe

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<212> DNA  
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<223> Synthetic oligonucleotide probe

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<212> DNA  
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | His | Thr | Phe | Gly | Lys | Asn | Gly | Leu | Glu | Phe | Asp | Thr | Gly | Ile | 110 | 115 | 120 |
| His | Tyr | Ile | Gly | Arg | Met | Glu | Glu | Gly | Ser | Ile | Gly | Arg | Phe | Ile | 125 | 130 | 135 |
| Leu | Asp | Gln | Ile | Thr | Glu | Gly | Gln | Leu | Asp | Trp | Ala | Pro | Leu | Ser | 140 | 145 | 150 |
| Ser | Pro | Phe | Asp | Ile | Met | Val | Leu | Glu | Gly | Pro | Asn | Gly | Arg | Lys | 155 | 160 | 165 |
| Glu | Tyr | Pro | Met | Tyr | Ser | Gly | Glu | Lys | Ala | Tyr | Ile | Gln | Gly | Leu | 170 | 175 | 180 |
| Lys | Glu | Lys | Phe | Pro | Gln | Glu | Glu | Ala | Ile | Ile | Asp | Lys | Tyr | Ile | 185 | 190 | 195 |
| Lys | Leu | Val | Lys | Val | Val | Ser | Ser | Gly | Ala | Pro | His | Ala | Ile | Leu | 200 | 205 | 210 |
| Leu | Lys | Phe | Leu | Pro | Leu | Pro | Val | Val | Gln | Leu | Leu | Asp | Arg | Cys | 215 | 220 | 225 |
| Gly | Leu | Leu | Thr | Arg | Phe | Ser | Pro | Phe | Leu | Gln | Ala | Ser | Thr | Gln | 230 | 235 | 240 |
| Ser | Leu | Ala | Glu | Val | Leu | Gln | Gln | Leu | Gly | Ala | Ser | Ser | Glu | Leu | 245 | 250 | 255 |
| Gln | Ala | Val | Leu | Ser | Tyr | Ile | Phe | Pro | Thr | Tyr | Gly | Val | Thr | Pro | 260 | 265 | 270 |
| Asn | His | Ser | Ala | Phe | Ser | Met | His | Ala | Leu | Leu | Val | Asn | His | Tyr | 275 | 280 | 285 |
| Met | Lys | Gly | Gly | Phe | Tyr | Pro | Arg | Gly | Gly | Ser | Ser | Glu | Ile | Ala | 290 | 295 | 300 |
| Phe | His | Thr | Ile | Pro | Val | Ile | Gln | Arg | Ala | Gly | Gly | Ala | Val | Leu | 305 | 310 | 315 |
| Thr | Lys | Ala | Thr | Val | Gln | Ser | Val | Leu | Leu | Asp | Ser | Ala | Gly | Lys | 320 | 325 | 330 |
| Ala | Cys | Gly | Val | Ser | Val | Lys | Lys | Gly | His | Glu | Leu | Val | Asn | Ile | 335 | 340 | 345 |
| Tyr | Cys | Pro | Ile | Val | Val | Ser | Asn | Ala | Gly | Leu | Phe | Asn | Thr | Tyr | 350 | 355 | 360 |
| Glu | His | Leu | Leu | Pro | Gly | Asn | Ala | Arg | Cys | Leu | Pro | Gly | Val | Lys | 365 | 370 | 375 |
| Gln | Gln | Leu | Gly | Thr | Val | Arg | Pro | Gly | Leu | Gly | Met | Thr | Ser | Val | 380 | 385 | 390 |
| Phe | Ile | Cys | Leu | Arg | Gly | Thr | Lys | Glu | Asp | Leu | His | Leu | Pro | Ser | 395 | 400 | 405 |
| Thr | Asn | Tyr | Tyr | Val | Tyr | Tyr | Asp | Thr | Asp | Met | Asp | Gln | Ala | Met | 410 | 415 | 420 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Arg | Tyr | Val | Ser | Met | Pro | Arg | Glu | Glu | Ala | Ala | Glu | His | Ile |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Pro | Leu | Leu | Phe | Phe | Ala | Phe | Pro | Ser | Ala | Lys | Asp | Pro | Thr | Trp |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Glu | Asp | Arg | Phe | Pro | Gly | Arg | Ser | Thr | Met | Ile | Met | Leu | Ile | Pro |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Thr | Ala | Tyr | Glu | Trp | Phe | Glu | Glu | Trp | Gln | Ala | Glu | Leu | Lys | Gly |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Lys | Arg | Gly | Ser | Asp | Tyr | Glu | Thr | Phe | Lys | Asn | Ser | Phe | Val | Glu |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |
| Ala | Ser | Met | Ser | Val | Val | Leu | Lys | Leu | Phe | Pro | Gln | Leu | Glu | Gly |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |
| Lys | Val | Glu | Ser | Val | Thr | Ala | Gly | Ser | Pro | Leu | Thr | Asn | Gln | Phe |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |
| Tyr | Leu | Ala | Ala | Pro | Arg | Gly | Ala | Cys | Tyr | Gly | Ala | Asp | His | Asp |
|     |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |
| Leu | Gly | Arg | Leu | His | Pro | Cys | Val | Met | Ala | Ser | Leu | Arg | Ala | Gln |
|     |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |
| Ser | Pro | Ile | Pro | Asn | Leu | Tyr | Leu | Thr | Gly | Gln | Asp | Ile | Phe | Thr |
|     |     |     |     | 560 |     |     |     |     | 565 |     |     |     |     | 570 |
| Cys | Gly | Leu | Val | Gly | Ala | Leu | Gln | Gly | Ala | Leu | Leu | Cys | Ser | Ser |
|     |     |     |     | 575 |     |     |     |     | 580 |     |     |     |     | 585 |
| Ala | Ile | Leu | Lys | Arg | Asn | Leu | Tyr | Ser | Asp | Leu | Lys | Asn | Leu | Asp |
|     |     |     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |
| Ser | Arg | Ile | Arg | Ala | Gln | Lys | Lys | Lys | Asn |     |     |     |     |     |
|     |     |     |     | 605 |     |     |     |     | 610 |     |     |     |     |     |

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 <212> DNA  
 <213> Homo sapiens

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<210> 115  
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 <212> PRT  
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<400> 115  
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 20 25 30



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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Ser | Leu | Asp | Ser | Lys | Thr | Thr | Leu | Thr | Ser | Asp | Glu | Ser | Val |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Lys | Asp | His | Thr | Thr | Ala | Gly | Arg | Val | Val | Ala | Gly | Gln | Ile | Phe |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Leu | Asp | Ser | Glu | Glu | Ser | Glu | Leu | Glu | Ser | Ser | Ile | Gln | Glu | Glu |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Glu | Asp | Ser | Leu | Lys | Ser | Gln | Glu | Gly | Glu | Ser | Val | Thr | Glu | Asp |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ile | Ser | Phe | Leu | Glu | Ser | Pro | Asn | Pro | Glu | Asn | Lys | Asp | Tyr | Glu |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Glu | Pro | Lys | Lys | Val | Arg | Lys | Pro | Ala | Leu | Thr | Ala | Ile | Glu | Gly |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Thr | Ala | His | Gly | Glu | Pro | Cys | His | Phe | Pro | Phe | Leu | Phe | Leu | Asp |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Lys | Glu | Tyr | Asp | Glu | Cys | Thr | Ser | Asp | Gly | Arg | Glu | Asp | Gly | Arg |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Leu | Trp | Cys | Ala | Thr | Thr | Tyr | Asp | Tyr | Lys | Ala | Asp | Glu | Lys | Trp |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Gly | Phe | Cys | Glu | Thr | Glu | Glu | Glu | Ala | Ala | Lys | Arg | Arg | Gln | Met |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Gln | Glu | Ala | Glu | Met | Met | Tyr | Gln | Thr | Gly | Met | Lys | Ile | Leu | Asn |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Gly | Ser | Asn | Lys | Lys | Ser | Gln | Lys | Arg | Glu | Ala | Tyr | Arg | Tyr | Leu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Gln | Lys | Ala | Ala | Ser | Met | Asn | His | Thr | Lys | Ala | Leu | Glu | Arg | Val |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Ser | Tyr | Ala | Leu | Leu | Phe | Gly | Asp | Tyr | Leu | Pro | Gln | Asn | Ile | Gln |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ala | Ala | Arg | Glu | Met | Phe | Glu | Lys | Leu | Thr | Glu | Glu | Gly | Ser | Pro |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Lys | Gly | Gln | Thr | Ala | Leu | Gly | Phe | Leu | Tyr | Ala | Ser | Gly | Leu | Gly |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Val | Asn | Ser | Ser | Gln | Ala | Lys | Ala | Leu | Val | Tyr | Tyr | Thr | Phe | Gly |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Ala | Leu | Gly | Gly | Asn | Leu | Ile | Ala | His | Met | Val | Leu | Val | Ser | Arg |
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Leu

<210> 116  
 <211> 584  
 <212> DNA  
 <213> Homo sapiens

<400> 116



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 50 55 60  
 Thr Met Trp Thr Lys Asp Gly Arg Thr Ile His Ser Gly Trp Ser  
 65 70 75  
 Arg Phe Arg Val Leu Pro Gln Gly Leu Lys Val Lys Gln Val Glu  
 80 85 90  
 Arg Glu Asp Ala Gly Val Tyr Val Cys Lys Ala Thr Asn Gly Phe  
 95 100 105  
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 Ser Pro Gly Lys Glu Ser Leu Gly Pro Asp Ser Ser Ser Gly Gly  
 125 130 135  
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 Gln Pro Ser Lys Met Arg Arg Arg Val Ile Ala Arg Pro Val Gly  
 155 160 165  
 Ser Ser Val Arg Leu Lys Cys Val Ala Ser Gly His Pro Arg Pro  
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<212> DNA

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 65 70 75  
 Ala Ile Arg Phe Tyr Tyr Gly Asp Arg Val Cys Ala Arg Pro Leu  
 80 85 90  
 Arg Leu Glu Ala Arg Thr Thr Asp Trp Thr Pro Ala Gly Ser Thr  
 95 100 105  
 Gly Gln Val Val His Gly Ser Pro Arg Glu Gly Phe Trp Cys Leu  
 110 115 120  
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 125 130 135  
 Arg Phe Leu Cys Pro Pro Gly Ser Leu Arg Arg Asp Thr Glu Arg  
 140 145 150  
 Ile Trp Ser Pro Trp Ser Pro Trp Ser Lys Cys Ser Ala Ala Cys  
 155 160 165  
 Gly Gln Thr Gly Val Gln Thr Arg Thr Arg Ile Cys Leu Ala Glu  
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 Met Val Ser Leu Cys Ser Glu Ala Ser Glu Glu Gly Gln His Cys  
 185 190 195  
 Met Gly Gln Asp Cys Thr Ala Cys Asp Leu Thr Cys Pro Met Gly  
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Val | Asn | Ala | Asp | Cys | Asp | Ala | Cys | Met | Cys | Gln | Asp | Phe | Met | 215 | 220 | 225 |
| Leu | His | Gly | Ala | Val | Ser | Leu | Pro | Gly | Gly | Ala | Pro | Ala | Ser | Gly | 230 | 235 | 240 |
| Ala | Ala | Ile | Tyr | Leu | Leu | Thr | Lys | Thr | Pro | Lys | Leu | Leu | Thr | Gln | 245 | 250 | 255 |
| Thr | Asp | Ser | Asp | Gly | Arg | Phe | Arg | Ile | Pro | Gly | Leu | Cys | Pro | Asp | 260 | 265 | 270 |
| Gly | Lys | Ser | Ile | Leu | Lys | Ile | Thr | Lys | Val | Lys | Phe | Ala | Pro | Ile | 275 | 280 | 285 |
| Val | Leu | Thr | Met | Pro | Lys | Thr | Ser | Leu | Lys | Ala | Ala | Thr | Ile | Lys | 290 | 295 | 300 |
| Ala | Glu | Phe | Val | Arg | Ala | Glu | Thr | Pro | Tyr | Met | Val | Met | Asn | Pro | 305 | 310 | 315 |
| Glu | Thr | Lys | Ala | Arg | Arg | Ala | Gly | Gln | Ser | Val | Ser | Leu | Cys | Cys | 320 | 325 | 330 |
| Lys | Ala | Thr | Gly | Lys | Pro | Arg | Pro | Asp | Lys | Tyr | Phe | Trp | Tyr | His | 335 | 340 | 345 |
| Asn | Asp | Thr | Leu | Leu | Asp | Pro | Ser | Leu | Tyr | Lys | His | Glu | Ser | Lys | 350 | 355 | 360 |
| Leu | Val | Leu | Arg | Lys | Leu | Gln | Gln | His | Gln | Ala | Gly | Glu | Tyr | Phe | 365 | 370 | 375 |
| Cys | Lys | Ala | Gln | Ser | Asp | Ala | Gly | Ala | Val | Lys | Ser | Lys | Val | Ala | 380 | 385 | 390 |
| Gln | Leu | Ile | Val | Thr | Ala | Ser | Asp | Glu | Thr | Pro | Cys | Asn | Pro | Val | 395 | 400 | 405 |
| Pro | Glu | Ser | Tyr | Leu | Ile | Arg | Leu | Pro | His | Asp | Cys | Phe | Gln | Asn | 410 | 415 | 420 |
| Ala | Thr | Asn | Ser | Phe | Tyr | Tyr | Asp | Val | Gly | Arg | Cys | Pro | Val | Lys | 425 | 430 | 435 |
| Thr | Cys | Ala | Gly | Gln | Gln | Asp | Asn | Gly | Ile | Arg | Cys | Arg | Asp | Ala | 440 | 445 | 450 |
| Val | Gln | Asn | Cys | Cys | Gly | Ile | Ser | Lys | Thr | Glu | Glu | Arg | Glu | Ile | 455 | 460 | 465 |
| Gln | Cys | Ser | Gly | Tyr | Thr | Leu | Pro | Thr | Lys | Val | Ala | Lys | Glu | Cys | 470 | 475 | 480 |
| Ser | Cys | Gln | Arg | Cys | Thr | Glu | Thr | Arg | Ser | Ile | Val | Arg | Gly | Arg | 485 | 490 | 495 |
| Val | Ser | Ala | Ala | Asp | Asn | Gly | Glu | Pro | Met | Arg | Phe | Gly | His | Val | 500 | 505 | 510 |
| Tyr | Met | Gly | Asn | Ser | Arg | Val | Ser | Met | Thr | Gly | Tyr | Lys | Gly | Thr | 515 | 520 | 525 |

|                 |     |     |     |     |     |     |     |     |     |     |     |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe Thr Leu His | Val | Pro | Gln | Asp | Thr | Glu | Arg | Leu | Val | Leu | Thr |
|                 | 530 |     |     |     |     | 535 |     |     |     |     | 540 |
| Phe Val Asp Arg | Leu | Gln | Lys | Phe | Val | Asn | Thr | Thr | Lys | Val | Leu |
|                 | 545 |     |     |     |     | 550 |     |     |     |     | 555 |
| Pro Phe Asn Lys | Lys | Gly | Ser | Ala | Val | Phe | His | Glu | Ile | Lys | Met |
|                 | 560 |     |     |     |     | 565 |     |     |     |     | 570 |
| Leu Arg Arg Lys | Glu | Pro | Ile | Thr | Leu | Glu | Ala | Met | Glu | Thr | Asn |
|                 | 575 |     |     |     |     | 580 |     |     |     |     | 585 |
| Ile Ile Pro Leu | Gly | Glu | Val | Val | Gly | Glu | Asp | Pro | Met | Ala | Glu |
|                 | 590 |     |     |     |     | 595 |     |     |     |     | 600 |
| Leu Glu Ile Pro | Ser | Arg | Ser | Phe | Tyr | Arg | Gln | Asn | Gly | Glu | Pro |
|                 | 605 |     |     |     |     | 610 |     |     |     |     | 615 |
| Tyr Ile Gly Lys | Val | Lys | Ala | Ser | Val | Thr | Phe | Leu | Asp | Pro | Arg |
|                 | 620 |     |     |     |     | 625 |     |     |     |     | 630 |
| Asn Ile Ser Thr | Ala | Thr | Ala | Ala | Gln | Thr | Asp | Leu | Asn | Phe | Ile |
|                 | 635 |     |     |     |     | 640 |     |     |     |     | 645 |
| Asn Asp Glu Gly | Asp | Thr | Phe | Pro | Leu | Arg | Thr | Tyr | Gly | Met | Phe |
|                 | 650 |     |     |     |     | 655 |     |     |     |     | 660 |
| Ser Val Asp Phe | Arg | Asp | Glu | Val | Thr | Ser | Glu | Pro | Leu | Asn | Ala |
|                 | 665 |     |     |     |     | 670 |     |     |     |     | 675 |
| Gly Lys Val Lys | Val | His | Leu | Asp | Ser | Thr | Gln | Val | Lys | Met | Pro |
|                 | 680 |     |     |     |     | 685 |     |     |     |     | 690 |
| Glu His Ile Ser | Thr | Val | Lys | Leu | Trp | Ser | Leu | Asn | Pro | Asp | Thr |
|                 | 695 |     |     |     |     | 700 |     |     |     |     | 705 |
| Gly Leu Trp Glu | Glu | Glu | Gly | Asp | Phe | Lys | Phe | Glu | Asn | Gln | Arg |
|                 | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
| Arg Asn Lys Arg | Glu | Asp | Arg | Thr | Phe | Leu | Val | Gly | Asn | Leu | Glu |
|                 | 725 |     |     |     |     | 730 |     |     |     |     | 735 |
| Ile Arg Glu Arg | Arg | Leu | Phe | Asn | Leu | Asp | Val | Pro | Glu | Ser | Arg |
|                 | 740 |     |     |     |     | 745 |     |     |     |     | 750 |
| Arg Cys Phe Val | Lys | Val | Arg | Ala | Tyr | Arg | Ser | Glu | Arg | Phe | Leu |
|                 | 755 |     |     |     |     | 760 |     |     |     |     | 765 |
| Pro Ser Glu Gln | Ile | Gln | Gly | Val | Val | Ile | Ser | Val | Ile | Asn | Leu |
|                 | 770 |     |     |     |     | 775 |     |     |     |     | 780 |
| Glu Pro Arg Thr | Gly | Phe | Leu | Ser | Asn | Pro | Arg | Ala | Trp | Gly | Arg |
|                 | 785 |     |     |     |     | 790 |     |     |     |     | 795 |
| Phe Asp Ser Val | Ile | Thr | Gly | Pro | Asn | Gly | Ala | Cys | Val | Pro | Ala |
|                 | 800 |     |     |     |     | 805 |     |     |     |     | 810 |
| Phe Cys Asp Asp | Gln | Ser | Pro | Asp | Ala | Tyr | Ser | Ala | Tyr | Val | Leu |
|                 | 815 |     |     |     |     | 820 |     |     |     |     | 825 |
| Ala Ser Leu Ala | Gly | Glu | Glu | Leu | Gln | Ala | Val | Glu | Ser | Ser | Pro |
|                 | 830 |     |     |     |     | 835 |     |     |     |     | 840 |

|                 |                     |                         |      |      |      |
|-----------------|---------------------|-------------------------|------|------|------|
| Lys Phe Asn Pro | Asn Ala Ile Gly Val | Pro Gln Pro Tyr Leu Asn | 845  | 850  | 855  |
| Lys Leu Asn Tyr | Arg Arg Thr Asp His | Glu Asp Pro Arg Val Lys | 860  | 865  | 870  |
| Lys Thr Ala Phe | Gln Ile Ser Met Ala | Lys Pro Arg Pro Asn Ser | 875  | 880  | 885  |
| Ala Glu Glu Ser | Asn Gly Pro Ile Tyr | Ala Phe Glu Asn Leu Arg | 890  | 895  | 900  |
| Ala Cys Glu Glu | Ala Pro Pro Ser Ala | Ala His Phe Arg Phe Tyr | 905  | 910  | 915  |
| Gln Ile Glu Gly | Asp Arg Tyr Asp Tyr | Asn Thr Val Pro Phe Asn | 920  | 925  | 930  |
| Glu Asp Asp Pro | Met Ser Trp Thr Glu | Asp Tyr Leu Ala Trp Trp | 935  | 940  | 945  |
| Pro Lys Pro Met | Glu Phe Arg Ala Cys | Tyr Ile Lys Val Lys Ile | 950  | 955  | 960  |
| Val Gly Pro Leu | Glu Val Asn Val Arg | Ser Arg Asn Met Gly Gly | 965  | 970  | 975  |
| Thr His Arg Arg | Thr Val Gly Lys Leu | Tyr Gly Ile Arg Asp Val | 980  | 985  | 990  |
| Arg Ser Thr Arg | Asp Arg Asp Gln Pro | Asn Val Ser Ala Ala Cys | 995  | 1000 | 1005 |
| Leu Glu Phe Lys | Cys Ser Gly Met Leu | Tyr Asp Gln Asp Arg Val | 1010 | 1015 | 1020 |
| Asp Arg Thr Leu | Val Lys Val Ile Pro | Gln Gly Ser Cys Arg Arg | 1025 | 1030 | 1035 |
| Ala Ser Val Asn | Pro Met Leu His Glu | Tyr Leu Val Asn His Leu | 1040 | 1045 | 1050 |
| Pro Leu Ala Val | Asn Asn Asp Thr Ser | Glu Tyr Thr Met Leu Ala | 1055 | 1060 | 1065 |
| Pro Leu Asp Pro | Leu Gly His Asn Tyr | Gly Ile Tyr Thr Val Thr | 1070 | 1075 | 1080 |
| Asp Gln Asp Pro | Arg Thr Ala Lys Glu | Ile Ala Leu Gly Arg Cys | 1085 | 1090 | 1095 |
| Phe Asp Gly Thr | Ser Asp Gly Ser Ser | Arg Ile Met Lys Ser Asn | 1100 | 1105 | 1110 |
| Val Gly Val Ala | Leu Thr Phe Asn Cys | Val Glu Arg Gln Val Gly | 1115 | 1120 | 1125 |
| Arg Gln Ser Ala | Phe Gln Tyr Leu Gln | Ser Thr Pro Ala Gln Ser | 1130 | 1135 | 1140 |
| Pro Ala Ala Gly | Thr Val Gln Gly Arg | Val Pro Ser Arg Arg Gln | 1145 | 1150 | 1155 |

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Ser Leu Arg Phe Pro Arg Val Ala Gln Gln Pro Leu Ile Asn  
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<400> 126  
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<210> 127  
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 gactccgccc agtgtgtgga ccaacaaaat agcattcttt gctgtcaggt 2000  
 gcattgtggg cataaggaaa tctgttataa gctgccatat tggcctgctt 2050

ccgtccctga atcccttcca acctgtgctt tagtgaacgt tgctctgtaa 2100  
 ccctcggttg ttgaaagatt tctttgtctg atgttagtga tgcacatgtg 2150  
 taacagcccc ctctaaaagc gcaagccagt cataccccctg tatactcttag 2200  
 cagcactgag tccagtgcga gcacacaccc actatacaag agtggctata 2250  
 ggaaaaaaga aagtgtatct atccttttgt attcaaatga agttattttt 2300  
 cttgaactac tgtaatatgt agattttttg tattattgcc aatttgtgtt 2350  
 accagacaat ctgttaatgt atctaattcg aatcagcaaa gactgacatt 2400  
 ttattttgtc ctctttcggt ctgttttgtt tcaactgtgca gagatttctc 2450  
 tgtaagggca acgaacgtgc tggcatcaaa gaatatcagt ttacatatat 2500  
 aacaagtgtataagattcc accaaaggac attctaaatg ttttcttgtt 2550  
 gctttaacac tggaagattt aaagaataaa aactcctgca taaacgattt 2600  
 caggaatttg tattgcaatt tcttaagatg aaaggaacag ccaccaagca 2650  
 gtttcacact cactttactg atttctgtgt ggactgagta cattcagctg 2700  
 acgaatttag ttcccaggaa gatggattga tgttcactag cttggacaac 2750  
 ttctgcaaaa tatgagacta tttccacttg ggaaaaatta caacagcaaa 2800  
 aaaaaaaaaa aaaaaaaaaa 2819

<210> 129  
 <211> 438  
 <212> PRT  
 <213> Homo sapiens

<400> 129  
 Met Tyr Leu Ser Arg Ser Leu Ser Ile His Ala Leu Trp Val Thr  
 1 5 10 15  
 Val Ser Ser Val Met Gln Pro Tyr Pro Leu Val Trp Gly His Tyr  
 20 25 30  
 Asp Leu Cys Lys Thr Gln Ile Tyr Thr Glu Glu Gly Lys Val Trp  
 35 40 45  
 Asp Tyr Met Ala Cys Gln Pro Glu Ser Thr Asp Met Thr Lys Tyr  
 50 55 60  
 Leu Lys Val Lys Leu Asp Pro Pro Asp Ile Thr Cys Gly Asp Pro  
 65 70 75  
 Pro Glu Thr Phe Cys Ala Met Gly Asn Pro Tyr Met Cys Asn Asn  
 80 85 90  
 Glu Cys Asp Ala Ser Thr Pro Glu Leu Ala His Pro Pro Glu Leu  
 95 100 105  
 Met Phe Asp Phe Glu Gly Arg His Pro Ser Thr Phe Trp Gln Ser  
 110 115 120  
 Ala Thr Trp Lys Glu Tyr Pro Lys Pro Leu Gln Val Asn Ile Thr



|                 |                     |                     |     |  |     |
|-----------------|---------------------|---------------------|-----|--|-----|
|                 | 125                 |                     | 130 |  | 135 |
| Leu Ser Trp Ser | Lys Thr Ile Glu Leu | Thr Asp Asn Ile Val | Ile |  |     |
|                 | 140                 |                     | 145 |  | 150 |
| Thr Phe Glu Ser | Gly Arg Pro Asp Gln | Met Ile Leu Glu Lys | Ser |  |     |
|                 | 155                 |                     | 160 |  | 165 |
| Leu Asp Tyr Gly | Arg Thr Trp Gln Pro | Tyr Gln Tyr Tyr Ala | Thr |  |     |
|                 | 170                 |                     | 175 |  | 180 |
| Asp Cys Leu Asp | Ala Phe His Met Asp | Pro Lys Ser Val Lys | Asp |  |     |
|                 | 185                 |                     | 190 |  | 195 |
| Leu Ser Gln His | Thr Val Leu Glu Ile | Ile Cys Thr Glu Glu | Tyr |  |     |
|                 | 200                 |                     | 205 |  | 210 |
| Ser Thr Gly Tyr | Thr Thr Asn Ser Lys | Ile Ile His Phe Glu | Ile |  |     |
|                 | 215                 |                     | 220 |  | 225 |
| Lys Asp Arg Phe | Ala Leu Phe Ala Gly | Pro Arg Leu Arg Asn | Met |  |     |
|                 | 230                 |                     | 235 |  | 240 |
| Ala Ser Leu Tyr | Gly Gln Leu Asp Thr | Thr Lys Lys Leu Arg | Asp |  |     |
|                 | 245                 |                     | 250 |  | 255 |
| Phe Phe Thr Val | Thr Asp Leu Arg Ile | Arg Leu Leu Arg Pro | Ala |  |     |
|                 | 260                 |                     | 265 |  | 270 |
| Val Gly Glu Ile | Phe Val Asp Glu Leu | His Leu Ala Arg Tyr | Phe |  |     |
|                 | 275                 |                     | 280 |  | 285 |
| Tyr Ala Ile Ser | Asp Ile Lys Val Arg | Gly Arg Cys Lys Cys | Asn |  |     |
|                 | 290                 |                     | 295 |  | 300 |
| Leu His Ala Thr | Val Cys Val Tyr Asp | Asn Ser Lys Leu Thr | Cys |  |     |
|                 | 305                 |                     | 310 |  | 315 |
| Glu Cys Glu His | Asn Thr Thr Gly Pro | Asp Cys Gly Lys Cys | Lys |  |     |
|                 | 320                 |                     | 325 |  | 330 |
| Lys Asn Tyr Gln | Gly Arg Pro Trp Ser | Pro Gly Ser Tyr Leu | Pro |  |     |
|                 | 335                 |                     | 340 |  | 345 |
| Ile Pro Lys Gly | Thr Ala Asn Thr Cys | Ile Pro Ser Ile Ser | Ser |  |     |
|                 | 350                 |                     | 355 |  | 360 |
| Ile Gly Thr Asn | Val Cys Asp Asn Glu | Leu Leu His Cys Gln | Asn |  |     |
|                 | 365                 |                     | 370 |  | 375 |
| Gly Gly Thr Cys | His Asn Asn Val Arg | Cys Leu Cys Pro Ala | Ala |  |     |
|                 | 380                 |                     | 385 |  | 390 |
| Tyr Thr Gly Ile | Leu Cys Glu Lys Leu | Arg Cys Glu Glu Ala | Gly |  |     |
|                 | 395                 |                     | 400 |  | 405 |
| Ser Cys Gly Ser | Asp Ser Gly Gln Gly | Ala Pro Pro His Gly | Thr |  |     |
|                 | 410                 |                     | 415 |  | 420 |
| Pro Ala Leu Leu | Leu Leu Thr Thr Leu | Leu Gly Thr Ala Ser | Pro |  |     |
|                 | 425                 |                     | 430 |  | 435 |
| Leu Val Phe     |                     |                     |     |  |     |

<210> 130  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 130  
tcgattatgg acgaacatgg cagc 24

<210> 131  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 131  
ttctgagatc cctcatcctc 20

<210> 132  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 132  
aggttcaggg acagcaagtt tggg 24

<210> 133  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 133  
tttgctggac ctcggctacg gaattggctt ccctctacgg acagctggat 50

<210> 134  
<211> 1493  
<212> DNA  
<213> Homo sapiens

<400> 134  
cccacgcgtc cgggtgacct gggccgagcc ctcccggctg gctaagattg 50  
ctgaggaggc ggcgggtagc tggcaggcgc cgacttccga aggccgccgt 100  
ccgggcgagg tgtcctcatg acttctcttg tggaccatgt cctgatctt 150  
ttttgcctgc gtggtacggg taagggatgg actgcccctc tcagcctcta 200  
ctgattttta ccacacccaa gatttttttg aatggaggag acggctcaag 250  
agtttagcct tgcgactggc ccagtatcca ggctcgagggt ctgcagaagg 300





<213> Homo sapiens

<400> 137

ctcagcggcg cttcctcgta gcgagcctag tggcgggtgt ttgcattgaa 50  
acgtgagcgc gacccgacct taaagagtgg ggagcaaagg gaggacagag 100  
ccctttaaaa cgaggcgggt ggtgcctgcc cctttaaggg cggggcgtcc 150  
ggacgactgt atctgagccc cagactgccc cgagtttctg tcgcaggctg 200  
cgaggaaagg cccctaggct gggctctgggt gcttggcggc ggcggttcc 250  
tccccgctcg tctccccgg gccagaggc acctcggtt cagtcatgct 300  
gagcagagta tggaagcacc tgactacgaa gtgctatccg tgcgagaaca 350  
gctattccac gagaggatcc gcgagtgtat tatatcaaca cttctgtttg 400  
caacactgta catcctctgc cacatcttcc tgaccgctt caagaagcct 450  
gctgagttca ccacagtgga tgatgaagat gccaccgtca acaagattgc 500  
gctcgagctg tgcaccttta ccctggcaat tgccctgggt gctgtcctgc 550  
tctgcccctt ctccatcacc agcaatgagg tgctgctctc cctgcctcgg 600  
aactactaca tccagtggct caacggctcc ctcatccatg gcctctggaa 650  
ccttgttttt ctcttcccc aactgtccct catcttctc atgccctttg 700  
catatttctt cactgagttt gagggtttt ctggctccag aaagggtgtc 750  
ctgggcccgg tctatgagac agtgggtgat ttgatgctcc tcaactctgt 800  
gggtgctagg atggtgtggg tggcatcagc cattgtggac aagaacaagg 850  
ccaacagaga gtcactctat gacttttggg agtactatct cccctacctc 900  
tactcatgca tctccttct tggggttctg ctgctcctgg tgtgtactcc 950  
actgggtctc gcccgcatgt tctccgtcac tgggaagctg ctagtcaagc 1000  
cccggctgct ggaagacctg gaggagcagc tgtactgtc agcctttgag 1050  
gaggcagccc tgaccgcag gatctgtaat cctacttct gctggctgcc 1100  
tttagacatg gagctgctac acagacaggt cctggctctg cagacacaga 1150  
gggtcctgct ggagaagagg cggaaggctt cagcctggca acggaacctg 1200  
ggctaccccc tggctatgct gtgcttgctg gtgctgacgg gcctgtctgt 1250  
gctcattgtg gccatccaca tctggagct gctcatcgat gaggctgcca 1300  
tgccccgagg catgcagggt acctccttag gccaggctc cttctccaag 1350  
ctgggctcct ttggtgocgt cattcaggtt gtactcatct ttacctaata 1400  
gggtgtcctca gttgtgggct tctatagctc tccactctc cggagcctgc 1450  
ggcccagatg gcacgacact gccatgacgc agataattgg gaactgtgtc 1500

tgtctcctgg tcctaagctc agcacttcct gtcttctctc gaaccctggg 1550  
gctcactcgc tttagacctgc tgggtgactt tggacgcttc aactggctgg 1600  
gcaattttcta cattgtgttc ctctacaacg cagcctttgc aggcctcacc 1650  
acactctgtc tgggtgaagac cttcactgca gctgtgcggg cagagctgat 1700  
ccgggcctttt gggctggaca gactgccgct gcccgctctcc ggtttcccc 1750  
aggcatctag gaagaccag caccagtgc ctccagctgg ggggtgggaag 1800  
gaaaaaactg gacactgcca tctgctgcct aggcctggag ggaagcccaa 1850  
ggctacttgg acctcaggac ctggaatctg agaggggtggg tggcagaggg 1900  
gagcagagcc atctgcacta ttgcataatc tgagccagag tttgggacca 1950  
ggacctcctg cttttccata cttaactgtg gcctcagcat ggggtagggc 2000  
tgggtgactg ggtctagccc ctgatcccaa atctgtttac acatcaatct 2050  
gcctcactgc tgttctgggc catccccata gccatgttta catgatttga 2100  
tgtgcaatag ggtggggtag gggcagggaa aggactgggc cagggcaggc 2150  
tcgggagata gattgtctcc cttgcctctg gccagcaga gcctaagcac 2200  
tgtgtatcc tggaggggct ttggaccacc tgaaagacca aggggatagg 2250  
gaggaggagg cttcagccat cagcaataaa gttgatccca gggaaaaaaa 2300

<210> 138  
<211> 489  
<212> PRT  
<213> Homo sapiens

<400> 138  
Met Glu Ala Pro Asp Tyr Glu Val Leu Ser Val Arg Glu Gln Leu  
1 5 10 15  
Phe His Glu Arg Ile Arg Glu Cys Ile Ile Ser Thr Leu Leu Phe  
20 25 30  
Ala Thr Leu Tyr Ile Leu Cys His Ile Phe Leu Thr Arg Phe Lys  
35 40 45  
Lys Pro Ala Glu Phe Thr Thr Val Asp Asp Glu Asp Ala Thr Val  
50 55 60  
Asn Lys Ile Ala Leu Glu Leu Cys Thr Phe Thr Leu Ala Ile Ala  
65 70 75  
Leu Gly Ala Val Leu Leu Leu Pro Phe Ser Ile Ile Ser Asn Glu  
80 85 90  
Val Leu Leu Ser Leu Pro Arg Asn Tyr Tyr Ile Gln Trp Leu Asn  
95 100 105  
Gly Ser Leu Ile His Gly Leu Trp Asn Leu Val Phe Leu Phe Pro  
110 115 120  
Asn Leu Ser Leu Ile Phe Leu Met Pro Phe Ala Tyr Phe Phe Thr

|                                     |     |                         |     |     |     |
|-------------------------------------|-----|-------------------------|-----|-----|-----|
|                                     | 125 |                         | 130 |     | 135 |
| Glu Ser Glu Gly Phe Ala Gly Ser Arg | 140 | Lys Gly Val Leu Gly Arg | 145 | 150 |     |
| Val Tyr Glu Thr Val Val Met Leu Met | 155 | Leu Leu Thr Leu Leu Val | 160 | 165 |     |
| Leu Gly Met Val Trp Val Ala Ser Ala | 170 | Ile Val Asp Lys Asn Lys | 175 | 180 |     |
| Ala Asn Arg Glu Ser Leu Tyr Asp Phe | 185 | Trp Glu Tyr Tyr Leu Pro | 190 | 195 |     |
| Tyr Leu Tyr Ser Cys Ile Ser Phe Leu | 200 | Gly Val Leu Leu Leu Leu | 205 | 210 |     |
| Val Cys Thr Pro Leu Gly Leu Ala Arg | 215 | Met Phe Ser Val Thr Gly | 220 | 225 |     |
| Lys Leu Leu Val Lys Pro Arg Leu Leu | 230 | Glu Asp Leu Glu Glu Gln | 235 | 240 |     |
| Leu Tyr Cys Ser Ala Phe Glu Glu Ala | 245 | Ala Leu Thr Arg Arg Ile | 250 | 255 |     |
| Cys Asn Pro Thr Ser Cys Trp Leu Pro | 260 | Leu Asp Met Glu Leu Leu | 265 | 270 |     |
| His Arg Gln Val Leu Ala Leu Gln Thr | 275 | Gln Arg Val Leu Leu Glu | 280 | 285 |     |
| Lys Arg Arg Lys Ala Ser Ala Trp Gln | 290 | Arg Asn Leu Gly Tyr Pro | 295 | 300 |     |
| Leu Ala Met Leu Cys Leu Leu Val Leu | 305 | Thr Gly Leu Ser Val Leu | 310 | 315 |     |
| Ile Val Ala Ile His Ile Leu Glu Leu | 320 | Leu Ile Asp Glu Ala Ala | 325 | 330 |     |
| Met Pro Arg Gly Met Gln Gly Thr Ser | 335 | Leu Gly Gln Val Ser Phe | 340 | 345 |     |
| Ser Lys Leu Gly Ser Phe Gly Ala Val | 350 | Ile Gln Val Val Leu Ile | 355 | 360 |     |
| Phe Tyr Leu Met Val Ser Ser Val Val | 365 | Gly Phe Tyr Ser Ser Pro | 370 | 375 |     |
| Leu Phe Arg Ser Leu Arg Pro Arg Trp | 380 | His Asp Thr Ala Met Thr | 385 | 390 |     |
| Gln Ile Ile Gly Asn Cys Val Cys Leu | 395 | Leu Val Leu Ser Ser Ala | 400 | 405 |     |
| Leu Pro Val Phe Ser Arg Thr Leu Gly | 410 | Leu Thr Arg Phe Asp Leu | 415 | 420 |     |
| Leu Gly Asp Phe Gly Arg Phe Asn Trp | 425 | Leu Gly Asn Phe Tyr Ile | 430 | 435 |     |
| Val Phe Leu Tyr Asn Ala Ala Phe Ala |     | Gly Leu Thr Thr Leu Cys |     |     |     |

|   |     |     |
|---|-----|-----|
| 440   | 445 | 450 |
| Leu Val Lys Thr Phe Thr Ala Ala Val Arg Ala Glu Leu Ile Arg |     |     |
| 455   | 460 | 465 |
| Ala Phe Gly Leu Asp Arg Leu Pro Leu Pro Val Ser Gly Phe Pro |     |     |
| 470   | 475 | 480 |
| Gln Ala Ser Arg Lys Thr Gln His Gln                         |     |     |
| 485   |     |     |

<210> 139  
 <211> 294  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 53, 57  
 <223> unknown base

<400> 139  
 ggctgccgag ggaaggcccc ttgggttggt cttggttgct tggcggcggc 50  
 ggnnttcntcc ccgctcgtcc tccccggggc cagaggcacc tcggcttcag 100  
 tcatgctgag cagagtatgg aagcacctga ctacgaagtg ctatccgtgc 150  
 gagaacagct attccacgag aggatccgag agtgtattat atcaaacatt 200  
 ctgtttgcaa cactgtacat cctctgccac atcttcctga cccgcttcaa 250  
 gaagcctgct gagttcacca cagtggatga tgaagatgcc accg 294

<210> 140  
 <211> 526  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 197, 349  
 <223> unknown base

<400> 140  
 gaccgacctt aaagagtggg agcaaaggga ggacagagcc ttttaaaacg 50  
 aggcggtggt gcctgccctt taaggggcggg gcgtccggac gactgtatct 100  
 gagccccaga ctgccccgag tttctgtcgc aggctgcgag gaaaggcccc 150  
 taggctgggt ctggtgcttg gcggcggcgg cttcctcccc gttgtcntcc 200  
 ccggggcccag aggcacctcg gcttcagtca tgctgagcag agtatggaag 250  
 cacctgacta cgaagtgcta tccgtgcgag aacagctatt ccacgagagg 300  
 atccgcgagt gtattatatc aacactttctg tttgcaaacac tgtacatcnt 350  
 ctgccacatc ttctgaccc gcttcaagaa gcctgctgag ttcaccacag 400  
 tggatgatga agatgccacc gtcaacaaga ttgcgctcga gctgtgcacc 450



tttaccctgg caattgccct ggggtgctgtc ctgctcctgc ccttctccat 500  
 catcagcaat gaggtgctgc actccc 526  
 <210> 141  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Synthetic oligonucleotide probe  
 <400> 141  
 gactgtatct gagccccaga ctgc 24  
 <210> 142  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Synthetic oligonucleotide probe  
 <400> 142  
 tcagcaatga ggtgctgctc 20  
 <210> 143  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Synthetic oligonucleotide probe  
 <400> 143  
 tgaggaagat gagggacagg ttgg 24  
 <210> 144  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Synthetic oligonucleotide probe  
 <400> 144  
 tatggaagca cctgactacg aagtgtatc cgtgcgagaa cagctattcc 50  
 <210> 145  
 <211> 685  
 <212> DNA  
 <213> Homo sapiens  
 <400> 145  
 gatgtgctcc ttggagctgg tgtgcagtgt cctgactgta agatcaagtc 50  
 caaacctgtt ttggaattga ggaaacttct cttttgatct cagcccttgg 100  
 tgggccaggt cttcatgtg ctgtgggtga tattactggc cctggctcct 150  
 gtcagtggac agtttgcaag gacaccagg cccattattt tcctccagcc 200  
 tccatggacc acagtcttcc aaggagagag agtgaccctc acttgcaagg 250

gatttcgctt ctactcacca cagaaaacaa aatggtacca tcggtacctt 300  
 gggaaagaaa tactaagaga aaccccgagac aatataccttg aggttcagga 350  
 atctggagag tacagatgcc agggccaggg ctcccctctc agtagccctg 400  
 tgcacttgga tttttcttca gagatgggat ttcctcatgc tgcccaggct 450  
 aatgttgaac tcctgggctc aagtgatctg ctcacctagg cctctcaaag 500  
 cgctgggatt acagcttcgc tgatcctgca agctccactt tctgtgtttg 550  
 aaggagactc tgtggttctg aggtgccggg caaaggcgga agtaacactg 600  
 aataatacta tttaacaaga tgataatgtc ctggcattcc ttaataaaaag 650  
 aactgacttc caaaaaaaaa aaaaaaaaaa aaaaa 685

<210> 146  
 <211> 124  
 <212> PRT  
 <213> Homo sapiens

<400> 146  
 Met Leu Leu Trp Val Ile Leu Leu Val Leu Ala Pro Val Ser Gly  
 1 5 10 15  
 Gln Phe Ala Arg Thr Pro Arg Pro Ile Ile Phe Leu Gln Pro Pro  
 20 25 30  
 Trp Thr Thr Val Phe Gln Gly Glu Arg Val Thr Leu Thr Cys Lys  
 35 40 45  
 Gly Phe Arg Phe Tyr Ser Pro Gln Lys Thr Lys Trp Tyr His Arg  
 50 55 60  
 Tyr Leu Gly Lys Glu Ile Leu Arg Glu Thr Pro Asp Asn Ile Leu  
 65 70 75  
 Glu Val Gln Glu Ser Gly Glu Tyr Arg Cys Gln Ala Gln Gly Ser  
 80 85 90  
 Pro Leu Ser Ser Pro Val His Leu Asp Phe Ser Ser Glu Met Gly  
 95 100 105  
 Phe Pro His Ala Ala Gln Ala Asn Val Glu Leu Leu Gly Ser Ser  
 110 115 120

Asp Leu Leu Thr

<210> 147  
 <211> 1621  
 <212> DNA  
 <213> Homo sapiens

<400> 147  
 cagaagaggg ggctagctag ctgtctctgc ggaccaggga gacccccgcg 50  
 cccccccggt gtgaggcggc ctcacagggc cgggtgggct ggcgagccga 100  
 cgcgggcgcg gaggaggctg tgaggagtgt gtggaacagg acccgggaca 150

gaggaacocat ggctccgcag aacctgagca ccttttgcc tttgctgcta 200  
 tacctcatcg gggcggtgat tgccggacga gatttctata agatcttggg 250  
 ggtgcctcga agtgcctcta taaaggatat taaaaaggcc tataggaaac 300  
 tagccctgca gcttcatccc gaccggaacc ctgatgatcc acaagcccag 350  
 gagaaattcc aggatctggg tgctgcttat gaggttctgt cagatagtga 400  
 gaaacggaaa cagtacgata cttatggtga agaaggatta aaagatggtc 450  
 atcagagctc ccatggagac attttttcac acttctttgg ggattttggg 500  
 ttcatgtttg gaggaacccc tcgtcagcaa gacagaaata ttccaagagg 550  
 aagtgatatt attgtagatc tagaagtcac tttggaagaa gtatatgcag 600  
 gaaattttgt ggaagtagtt agaaacaaac ctgtggcaag gcaggctcct 650  
 ggcaaacgga agtgcaattg tcggcaagag atgcggacca cccagctggg 700  
 ccctgggccc ttccaaatga cccaggaggt ggtctgcgac gaatgcccta 750  
 atgtcaaact agtgaatgaa gaacgaacgc tggaagtaga aatagagcct 800  
 ggggtgagag acggcatgga gtaccccttt attggagaag gtgagcctca 850  
 cgtggatggg gagcctggag atttacgggt ccgaatcaaa gttgtcaagc 900  
 acccaatatt tgaaaggaga ggagatgatt tgtacacaaa tgtgacaatc 950  
 tcattagtgt agtcactggg tggctttgag atggatatta ctacttgga 1000  
 tggtcacaag gtacatattt cccgggataa gatcaccagg ccaggagcga 1050  
 agctatggaa gaaaggggaa gggctcccca actttgacaa caacaatatc 1100  
 aagggctcct tgataatcac ttttgatgtg gattttccaa aagaacagtt 1150  
 aacagaggaa gcgagagaag gtatcaaaca gctactgaaa caagggtcag 1200  
 tgcagaaggt atacaatgga ctgcaaggat attgagagtg aataaaattg 1250  
 gactttgttt aaaataagtg aataagcgat atttattatc tgcaaggttt 1300  
 ttttggtgtg gtttttggtt ttattttcaa tatgcaagtt aggtttaatt 1350  
 tttttatcta atgatcatca tgaaatgaat aagagggcct aagaatttgt 1400  
 ccatttgcat tcggaaaaga atgaccagca aaaggtttac taatacctct 1450  
 ccctttgggg atttaatgtc tgggtgctgcc gcctgagttt caagaattaa 1500  
 agctgcaaga ggactccagg agcaaaagaa acacaatata gaggggttga 1550  
 gttgttagca atttcattca aaatgccaac tggagaagtc tgtttttaaa 1600  
 tacattttgt tgttattttt a 1621

<210> 148  
 <211> 358  
 <212> PRT

<213> Homo sapiens

<400> 148

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Pro | Gln | Asn | Leu | Ser | Thr | Phe | Cys | Leu | Leu | Leu | Leu | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Ile | Gly | Ala | Val | Ile | Ala | Gly | Arg | Asp | Phe | Tyr | Lys | Ile | Leu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Gly | Val | Pro | Arg | Ser | Ala | Ser | Ile | Lys | Asp | Ile | Lys | Lys | Ala | Tyr |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Arg | Lys | Leu | Ala | Leu | Gln | Leu | His | Pro | Asp | Arg | Asn | Pro | Asp | Asp |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Pro | Gln | Ala | Gln | Glu | Lys | Phe | Gln | Asp | Leu | Gly | Ala | Ala | Tyr | Glu |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Val | Leu | Ser | Asp | Ser | Glu | Lys | Arg | Lys | Gln | Tyr | Asp | Thr | Tyr | Gly |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Glu | Glu | Gly | Leu | Lys | Asp | Gly | His | Gln | Ser | Ser | His | Gly | Asp | Ile |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Phe | Ser | His | Phe | Phe | Gly | Asp | Phe | Gly | Phe | Met | Phe | Gly | Gly | Thr |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Pro | Arg | Gln | Gln | Asp | Arg | Asn | Ile | Pro | Arg | Gly | Ser | Asp | Ile | Ile |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Val | Asp | Leu | Glu | Val | Thr | Leu | Glu | Glu | Val | Tyr | Ala | Gly | Asn | Phe |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Val | Glu | Val | Val | Arg | Asn | Lys | Pro | Val | Ala | Arg | Gln | Ala | Pro | Gly |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Lys | Arg | Lys | Cys | Asn | Cys | Arg | Gln | Glu | Met | Arg | Thr | Thr | Gln | Leu |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Gly | Pro | Gly | Arg | Phe | Gln | Met | Thr | Gln | Glu | Val | Val | Cys | Asp | Glu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Cys | Pro | Asn | Val | Lys | Leu | Val | Asn | Glu | Glu | Arg | Thr | Leu | Glu | Val |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Glu | Ile | Glu | Pro | Gly | Val | Arg | Asp | Gly | Met | Glu | Tyr | Pro | Phe | Ile |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Gly | Glu | Gly | Glu | Pro | His | Val | Asp | Gly | Glu | Pro | Gly | Asp | Leu | Arg |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Phe | Arg | Ile | Lys | Val | Val | Lys | His | Pro | Ile | Phe | Glu | Arg | Arg | Gly |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Asp | Asp | Leu | Tyr | Thr | Asn | Val | Thr | Ile | Ser | Leu | Val | Glu | Ser | Leu |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Val | Gly | Phe | Glu | Met | Asp | Ile | Thr | His | Leu | Asp | Gly | His | Lys | Val |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| His | Ile | Ser | Arg | Asp | Lys | Ile | Thr | Arg | Pro | Gly | Ala | Lys | Leu | Trp |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |

Lys Lys Gly Glu Gly Leu Pro Asn Phe Asp Asn Asn Asn Ile Lys  
 305 310 315

Gly Ser Leu Ile Ile Thr Phe Asp Val Asp Phe Pro Lys Glu Gln  
 320 325 330

Leu Thr Glu Glu Ala Arg Glu Gly Ile Lys Gln Leu Leu Lys Gln  
 335 340 345

Gly Ser Val Gln Lys Val Tyr Asn Gly Leu Gln Gly Tyr  
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<210> 149

<211> 509

<212> DNA

<213> Homo sapiens

<220>

<221> unsure

<222> 34, 52, 134, 142, 155, 158, 196, 217, 228, 272, 347, 410, 445,  
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<223> unknown base

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acaagcccag gagaaattcc aggatttggg tgctgcttat gaggttntgt 350

cagatagtga gaaacggaaa cagtacgata attatggtga agaaggatta 400

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<212> DNA

<213> Homo sapiens

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<210> 151

<211> 226

<212> PRT

<213> Homo sapiens

<400> 151

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Glu | Thr | Val | Val | Ile | Val | Ala | Ile | Gly | Val | Leu | Ala | Thr | Ile |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Leu | Ala | Ser | Phe | Ala | Ala | Leu | Val | Leu | Val | Cys | Arg | Gln | Arg |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Cys | Arg | Pro | Arg | Asp | Leu | Leu | Gln | Arg | Tyr | Asp | Ser | Lys | Pro |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|



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tgaatttgaa gactcattta aaatattgtg ttattttataa agtcatttga 550  
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<210> 153  
<211> 138  
<212> PRT  
<213> Homo sapiens

<220>  
<221> N-myristoylation Sites  
<222> 11-16, 51-56 and 116-121  
<223> N-myristoylation Sites.  
<220>  
<221> Transmembrane domains  
<222> 12-30, 33-52, 69-89 and 93-109  
<223> Transmembrane domains

<220>  
<221> Aminoacyl-transfer RNA Synthetases.  
<222> 49-59  
<223> Aminoacyl-transfer RNA synthetases class-II protein.

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Asp Lys Ala Leu Leu Ala Ile Gly Asn Val Leu Phe Val Ala Gly  
35 40 45  
Leu Ala Phe Val Ile Gly Leu Glu Arg Thr Phe Arg Phe Phe Phe  
50 55 60



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Lys | His | Lys | Met | Lys | Ala | Thr | Gly | Phe | Phe | Leu | Gly | Gly | Val |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Phe | Val | Val | Leu | Ile | Gly | Trp | Pro | Leu | Ile | Gly | Met | Ile | Phe | Glu |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ile | Tyr | Gly | Phe | Phe | Leu | Leu | Phe | Arg | Gly | Phe | Phe | Pro | Val | Val |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Val | Gly | Phe | Ile | Arg | Arg | Val | Pro | Val | Leu | Gly | Ser | Leu | Leu | Asn |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Leu | Pro | Gly | Ile | Arg | Ser | Phe | Val | Asp | Lys | Val | Gly | Glu | Ser | Asn |
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Asn Met Val

<210> 154  
 <211> 405  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 66  
 <223> unknown base

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 ccactgcagc catgatctcc ttaacggaca cgcagaaaat tggaatggga 150  
 ttaaccggat ttggagtgtt tttcctgttc tttggaatga ttctcttttt 200  
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<210> 155  
 <211> 1781  
 <212> DNA  
 <213> Homo sapiens

<400> 155  
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 aagagcgtcc acgcatcatg gacctcgcg gactgctgaa gtctcagttc 200  
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<210> 156



|                 |                     |                     |     |  |     |
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|                 | 290                 |                     | 295 |  | 300 |
| Pro Pro Arg Arg | Pro Trp Thr Leu Val | Asn Trp Leu Phe Trp | Ala |  |     |
|                 | 305                 | 310                 | 315 |  |     |
| Ser Leu Val Leu | Tyr Pro Phe Phe Gln | Phe Leu Val Ser Met | Ile |  |     |
|                 | 320                 | 325                 | 330 |  |     |
| Arg Ser Gly Ser | Ser Leu Thr Leu Ala | Ser Phe Ile Leu Val | Phe |  |     |
|                 | 335                 | 340                 | 345 |  |     |
| Phe Val Ala Ser | Val Gly Val Arg Trp | Met Ile Gly Val Thr | Glu |  |     |
|                 | 350                 | 355                 | 360 |  |     |
| Ile Asp Lys Gly | Ser Ala Tyr Gly Asn | Ser Asp Ser Lys Gln | Lys |  |     |
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Leu Asn Asp

<210> 157  
 <211> 1849  
 <212> DNA  
 <213> Homo sapiens

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 tacataagat aaatgaaatg tatgcttcat tacaagagga attaaagagt 700  
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 tgaaaattta tctgagtcac taaaattctc ctttaagtga acttttttag 1750  
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<210> 158  
 <211> 409  
 <212> PRT  
 <213> Homo sapiens

<400> 158  
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 20 25 30  
 Gly Phe Leu Leu Gly Glu Val Lys Gly Glu Ala Lys Asn Ser Ile  
 35 40 45  
 Thr Asp Ser Gln Met Asp Asp Val Glu Val Val Tyr Thr Ile Asp  
 50 55 60  
 Ile Gln Lys Tyr Ile Pro Cys Tyr Gln Leu Phe Ser Phe Tyr Asn  
 65 70 75  
 Ser Ser Gly Glu Val Asn Glu Gln Ala Leu Lys Lys Ile Leu Ser  
 80 85 90  
 Asn Val Lys Lys Asn Val Val Gly Trp Tyr Lys Phe Arg Arg His  
 95 100 105

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ser | Asp | Gln | Ile | Met | Thr | Phe | Arg | Glu | Arg | Leu | Leu | His | Lys | Asn |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Leu | Gln | Glu | His | Phe | Ser | Asn | Gln | Asp | Leu | Val | Phe | Leu | Leu | Leu |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Thr | Pro | Ser | Ile | Ile | Thr | Glu | Ser | Cys | Ser | Thr | His | Arg | Leu | Glu |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| His | Ser | Leu | Tyr | Lys | Pro | Gln | Lys | Gly | Leu | Phe | His | Arg | Val | Pro |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Leu | Val | Val | Ala | Asn | Leu | Gly | Met | Ser | Glu | Gln | Leu | Gly | Tyr | Lys |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Thr | Val | Ser | Gly | Ser | Cys | Met | Ser | Thr | Gly | Phe | Ser | Arg | Ala | Val |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Gln | Thr | His | Ser | Ser | Lys | Phe | Phe | Glu | Glu | Asp | Gly | Ser | Leu | Lys |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Glu | Val | His | Lys | Ile | Asn | Glu | Met | Tyr | Ala | Ser | Leu | Gln | Glu | Glu |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Leu | Lys | Ser | Ile | Cys | Lys | Lys | Val | Glu | Asp | Ser | Glu | Gln | Ala | Val |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Asp | Lys | Leu | Val | Lys | Asp | Val | Asn | Arg | Leu | Lys | Arg | Glu | Ile | Glu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Lys | Arg | Arg | Gly | Ala | Gln | Ile | Gln | Ala | Ala | Arg | Glu | Lys | Asn | Ile |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Gln | Lys | Asp | Pro | Gln | Glu | Asn | Ile | Phe | Leu | Cys | Gln | Ala | Leu | Arg |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Thr | Phe | Phe | Pro | Asn | Ser | Glu | Phe | Leu | His | Ser | Cys | Val | Met | Ser |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Leu | Lys | Asn | Arg | His | Val | Ser | Lys | Ser | Ser | Cys | Asn | Tyr | Asn | His |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| His | Leu | Asp | Val | Val | Asp | Asn | Leu | Thr | Leu | Met | Val | Glu | His | Thr |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |
| Asp | Ile | Pro | Glu | Ala | Ser | Pro | Ala | Ser | Thr | Pro | Gln | Ile | Ile | Lys |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |
| His | Lys | Ala | Leu | Asp | Leu | Asp | Asp | Arg | Trp | Gln | Phe | Lys | Arg | Ser |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Arg | Leu | Leu | Asp | Thr | Gln | Asp | Lys | Arg | Ser | Lys | Ala | Asn | Thr | Gly |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Ser | Ser | Asn | Gln | Asp | Lys | Ala | Ser | Lys | Met | Ser | Ser | Pro | Glu | Thr |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |
| Asp | Glu | Glu | Ile | Glu | Lys | Met | Lys | Gly | Phe | Gly | Glu | Tyr | Ser | Arg |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |
| Ser | Pro | Thr | Phe |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 159  
 <211> 2651  
 <212> DNA  
 <213> Homo sapiens

<400> 159  
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 cgccgcccac accctctgcg gtccccgcgg cgcttgccac ccttccctcc 150  
 ttcccccggt ccccgccctcg ccggccagtc agcttgccgg gttcgctgcc 200  
 ccgcgaaacc ccgaggtcac cagcccgcg cttctgcttcc ctgggcccgc 250  
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 ctgctagtc cccgactccg ccagccctcg gcccgctgcc gtagcgccgc 450  
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 ggcacggttc ggcttgcccg cgcttctctg caccctggca gtgctcagcg 550  
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 cgtcttttacg tgtccaaagg cttcaacaag aacgatgccc cctccacga 650  
 gatcaacggt gatcatttga agatctgtcc ccagggttct acctgctgct 700  
 ctcaagagat ggaggagaag tacagcctgc aaagtaaaga tgatttcaaa 750  
 agtgtggtca gcgaacagtg caatcatttg caagctgtct ttgcttcaag 800  
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 aatccctgaa tgatatgttt gtgaagacat atggccattt atacatgcaa 900  
 aattctgagc tatttaaaga tctcttcgta gagttgaaac gttactacgt 950  
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 agatgtccct cgcaaattga agctccaggt tactcgtgct tttgtagcag 1150  
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 ttcgagtgat gaccagcaag atgaagaatg catacaatgg gaacgacgtg 1950  
 gacttctttg atatcagtga tgaaagtgt ggagaaggaa gtggaagtgg 2000  
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 ggggcacagg cctacctcct cactgtcttc tgcatcttgt tcctggttat 2150  
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 aaagttaaaa ggcaccagtt atcacttttc taccatccta gtgactttgc 2250  
 tttttaaatg aatggacaac aatgtacagt ttttactatg tggccactgg 2300  
 tttagaagt gctgactttg ttttctcatt cagttttggg aggaaaaggg 2350  
 actgtgcatt gagttgggtc ctgctcccc aaaccatgtt aaacgtggct 2400  
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 tttccaactg tgatctcgcc ttgtttctta caagcaaacc agggccctt 2550  
 cttggcacgt aacatgtacg tatttctgaa atattaaata gctgtacaga 2600  
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c 2651

<210> 160  
 <211> 556  
 <212> PRT  
 <213> Homo sapiens

<400> 160  
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                   20                  25                  30  
 Ser Glu Val Arg Arg Leu Tyr Val Ser Lys Gly Phe Asn Lys Asn



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| 35  |     |     |     |            |     |     |     |     | 40         |     |     |     |     | 45         |
| Asp | Ala | Pro | Leu | His<br>50  | Glu | Ile | Asn | Gly | Asp<br>55  | His | Leu | Lys | Ile | Cys<br>60  |
| Pro | Gln | Gly | Ser | Thr<br>65  | Cys | Cys | Ser | Gln | Glu<br>70  | Met | Glu | Glu | Lys | Tyr<br>75  |
| Ser | Leu | Gln | Ser | Lys<br>80  | Asp | Asp | Phe | Lys | Ser<br>85  | Val | Val | Ser | Glu | Gln<br>90  |
| Cys | Asn | His | Leu | Gln<br>95  | Ala | Val | Phe | Ala | Ser<br>100 | Arg | Tyr | Lys | Lys | Phe<br>105 |
| Asp | Glu | Phe | Phe | Lys<br>110 | Glu | Leu | Leu | Glu | Asn<br>115 | Ala | Glu | Lys | Ser | Leu<br>120 |
| Asn | Asp | Met | Phe | Val<br>125 | Lys | Thr | Tyr | Gly | His<br>130 | Leu | Tyr | Met | Gln | Asn<br>135 |
| Ser | Glu | Leu | Phe | Lys<br>140 | Asp | Leu | Phe | Val | Glu<br>145 | Leu | Lys | Arg | Tyr | Tyr<br>150 |
| Val | Val | Gly | Asn | Val<br>155 | Asn | Leu | Glu | Glu | Met<br>160 | Leu | Asn | Asp | Phe | Trp<br>165 |
| Ala | Arg | Leu | Leu | Glu<br>170 | Arg | Met | Phe | Arg | Leu<br>175 | Val | Asn | Ser | Gln | Tyr<br>180 |
| His | Phe | Thr | Asp | Glu<br>185 | Tyr | Leu | Glu | Cys | Val<br>190 | Ser | Lys | Tyr | Thr | Glu<br>195 |
| Gln | Leu | Lys | Pro | Phe<br>200 | Gly | Asp | Val | Pro | Arg<br>205 | Lys | Leu | Lys | Leu | Gln<br>210 |
| Val | Thr | Arg | Ala | Phe<br>215 | Val | Ala | Ala | Arg | Thr<br>220 | Phe | Ala | Gln | Gly | Leu<br>225 |
| Ala | Val | Ala | Gly | Asp<br>230 | Val | Val | Ser | Lys | Val<br>235 | Ser | Val | Val | Asn | Pro<br>240 |
| Thr | Ala | Gln | Cys | Thr<br>245 | His | Ala | Leu | Leu | Lys<br>250 | Met | Ile | Tyr | Cys | Ser<br>255 |
| His | Cys | Arg | Gly | Leu<br>260 | Val | Thr | Val | Lys | Pro<br>265 | Cys | Tyr | Asn | Tyr | Cys<br>270 |
| Ser | Asn | Ile | Met | Arg<br>275 | Gly | Cys | Leu | Ala | Asn<br>280 | Gln | Gly | Asp | Leu | Asp<br>285 |
| Phe | Glu | Trp | Asn | Asn<br>290 | Phe | Ile | Asp | Ala | Met<br>295 | Leu | Met | Val | Ala | Glu<br>300 |
| Arg | Leu | Glu | Gly | Pro<br>305 | Phe | Asn | Ile | Glu | Ser<br>310 | Val | Met | Asp | Pro | Ile<br>315 |
| Asp | Val | Lys | Ile | Ser<br>320 | Asp | Ala | Ile | Met | Asn<br>325 | Met | Gln | Asp | Asn | Ser<br>330 |
| Val | Gln | Val | Ser | Gln<br>335 | Lys | Val | Phe | Gln | Gly<br>340 | Cys | Gly | Pro | Pro | Lys<br>345 |
| Pro | Leu | Pro | Ala | Gly        | Arg | Ile | Ser | Arg | Ser        | Ile | Ser | Glu | Ser | Ala        |



<400> 162  
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<210> 163  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 163  
ggtctcgtga ctgtgaagcc atgttacaac tactgctcaa acatcatgag 50

<210> 164  
<211> 870  
<212> DNA  
<213> Homo sapiens

<400> 164  
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gctgagtatc ctgacctgag tcatccccag ggatcaggag cctccagcag 100  
ggaaccttcc attatattct tcaagcaact tacagctgca ccgacagttg 150  
cgatgaaagt tctaattctt tccctcctcc tgttgctgcc actaatgctg 200  
atgtccatgg tctctagcag cctgaatcca ggggtcgcca gaggccacag 250  
ggaccgaggc caggcttcta ggagatggct ccaggaaggc ggccaagaat 300  
gtgagtgcaa agattgggtc ctgagagccc cgagaagaaa attcatgaca 350  
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tgtgaagaaa acaagacacc aaaggcacca cagaaagcca aacaagcatt 450  
ccagagcctg ccagcaattt ctcaaacaat gtcagctaag aagctttgct 500  
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actctccac tgtaccacc cctaaatcat tccagtgtct tcaaaaagca 650  
tgtttttcaa gatcattttg tttgttgctc tctctagtgt cttcttctct 700  
cgtcagtctt agcctgtgcc ctccccttac ccaggcttag gcttaattac 750  
ctgaaagatt ccaggaaact gtagcttcct agctagtgtc atttaacctt 800  
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tcaaaaaaaaa aaaaaaaaaa 870

<210> 165  
<211> 119  
<212> PRT  
<213> Homo sapiens

<400> 165  
Met Lys Val Leu Ile Ser Ser Leu Leu Leu Leu Pro Leu Met

|   |     |     |     |
|---|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Leu Met Ser Met Val Ser Ser Ser Leu Asn Pro Gly Val Ala Arg | 20  | 25  | 30  |
| Gly His Arg Asp Arg Gly Gln Ala Ser Arg Arg Trp Leu Gln Glu | 35  | 40  | 45  |
| Gly Gly Gln Glu Cys Glu Cys Lys Asp Trp Phe Leu Arg Ala Pro | 50  | 55  | 60  |
| Arg Arg Lys Phe Met Thr Val Ser Gly Leu Pro Lys Lys Gln Cys | 65  | 70  | 75  |
| Pro Cys Asp His Phe Lys Gly Asn Val Lys Lys Thr Arg His Gln | 80  | 85  | 90  |
| Arg His His Arg Lys Pro Asn Lys His Ser Arg Ala Cys Gln Gln | 95  | 100 | 105 |
| Phe Leu Lys Gln Cys Gln Leu Arg Ser Phe Ala Leu Pro Leu     | 110 | 115 |     |

<210> 166  
 <211> 551  
 <212> DNA  
 <213> Homo sapiens

<400> 166  
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 ccagacgact cgggcaaaga cccaaagcca gacttcccca aattcctaag 150  
 cctcctgggc acagagatca ttgagaatgc agtcgagttc atcctccgct 200  
 ccatgtccag gagcacagga tttatggaat ttgatgataa tgaaggaaaa 250  
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 tccaagagca gccaaatcct gcttttccag ttgggtcca caagtccctcc 350  
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 agaggaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 550  
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<210> 167  
 <211> 87  
 <212> PRT  
 <213> Homo sapiens

<400> 167  
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 Val Leu Phe Leu Thr Cys Tyr Ala Asp Asp Lys Pro Asp Lys Pro

|   |    |  |    |  |    |
|---|----|--|----|--|----|
|   | 20 |  | 25 |  | 30 |
| Asp Asp Lys Pro Asp Asp Ser Gly Lys Asp Pro Lys Pro Asp Phe |    |  |    |  |    |
|   | 35 |  | 40 |  | 45 |
| Pro Lys Phe Leu Ser Leu Leu Gly Thr Glu Ile Ile Glu Asn Ala |    |  |    |  |    |
|   | 50 |  | 55 |  | 60 |
| Val Glu Phe Ile Leu Arg Ser Met Ser Arg Ser Thr Gly Phe Met |    |  |    |  |    |
|   | 65 |  | 70 |  | 75 |
| Glu Phe Asp Asp Asn Glu Gly Lys His Ser Ser Lys             |    |  |    |  |    |
|   | 80 |  | 85 |  |    |

<210> 168  
 <211> 1371  
 <212> DNA  
 <213> Homo sapiens

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 gtgctgactc ccaagagcaa ccgcaagatg gagagcaaga aacggggagct 250  
 cttcagccag ataaaggggc ttacaggagc ctccgggaaa gtggccctac 300  
 tggagctggg ctgcggaacc ggagccaact ttcagttcta cccaccgggc 350  
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 aaagagcatg gctgagaaca ggcacctcca atatgagcgg tttgtggtgg 450  
 ctcttgagga ggacatgaga cagctggctg atggctccat ggatgtggtg 500  
 gtctgcactc tgggtgctgtg ctctgtgcag agcccaagga aggtcctgca 550  
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 gagccacact ggaaacacat tggggatggc tgctgcctca ccagagagac 700  
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 gctgtcaaac aatctttccc aagctccaag gcactcattt gtccttccc 850  
 cagcctccaa ttagaacaag ccaccacca gcctatctat cttccactga 900  
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 gacagtgaag aagctctact tctacgctga cccagggagg aaacactagg 1050  
 accctgttgt atcctcaact gcaagtttct ggactagtct cccaacgttt 1100

gcctcccaat gttgtccctt tccttcgttc ccatggtaaa gctcctctcg 1150  
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 tcatgggtgcc tgcattccctg ccaagcccc ctgacctct ctccccacta 1250  
 ccaccttctt cctgagctgg gggcaccagg gagaatcaga gatgctgggg 1300  
 atgccagagc aagactcaaa gaggcagagg ttttgttctc aaatattttt 1350  
 taataaatag acgaaaccac g 1371

<210> 169  
 <211> 277  
 <212> PRT  
 <213> Homo sapiens

<400> 169  
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 1 5 10 15  
 Thr Leu Pro Leu His Leu Met Ala Leu Leu Gly Cys Trp Gln Pro  
 20 25 30  
 Leu Cys Lys Ser Tyr Phe Pro Tyr Leu Met Ala Val Leu Thr Pro  
 35 40 45  
 Lys Ser Asn Arg Lys Met Glu Ser Lys Lys Arg Glu Leu Phe Ser  
 50 55 60  
 Gln Ile Lys Gly Leu Thr Gly Ala Ser Gly Lys Val Ala Leu Leu  
 65 70 75  
 Glu Leu Gly Cys Gly Thr Gly Ala Asn Phe Gln Phe Tyr Pro Pro  
 80 85 90  
 Gly Cys Arg Val Thr Cys Leu Asp Pro Asn Pro His Phe Glu Lys  
 95 100 105  
 Phe Leu Thr Lys Ser Met Ala Glu Asn Arg His Leu Gln Tyr Glu  
 110 115 120  
 Arg Phe Val Val Ala Pro Gly Glu Asp Met Arg Gln Leu Ala Asp  
 125 130 135  
 Gly Ser Met Asp Val Val Val Cys Thr Leu Val Leu Cys Ser Val  
 140 145 150  
 Gln Ser Pro Arg Lys Val Leu Gln Glu Val Arg Arg Val Leu Arg  
 155 160 165  
 Pro Gly Gly Val Leu Phe Phe Trp Glu His Val Ala Glu Pro Tyr  
 170 175 180  
 Gly Ser Trp Ala Phe Met Trp Gln Gln Val Phe Glu Pro Thr Trp  
 185 190 195  
 Lys His Ile Gly Asp Gly Cys Cys Leu Thr Arg Glu Thr Trp Lys  
 200 205 210  
 Asp Leu Glu Asn Ala Gln Phe Ser Glu Ile Gln Met Glu Arg Gln  
 215 220 225



gaagccatgg ggaaggactg cttcatatac tgatgtttgg gaaaaatggt 1200  
atattccaga cccaacaggc aaattcaacc taatccgaag atataccgag 1250  
atctcaaaca taaagtgaag cagaatttga actgtaagca agcattttctc 1300  
aggaagtcct ggaagatagc atgcatggga agtaacagtt gctaggcttc 1350  
aatgcctatc ggtagcaagc catggaaaaa gatgtgtcag ctaggtaaag 1400  
atgacaaaact gccctgtctg gcagtcagct tcccagacag actatagact 1450  
ataaatatgt ctccatctgc cttaccaagt gttttcttac tacaatgctg 1500  
aatgactgga aagaagaact gatatggcta gttcagctag ctggtacaga 1550  
taattcaaaa ctgctgttgg ttttaatttt gtaacctgtg gcctgatctg 1600  
taaataaaac ttacattttt c 1621

<210> 171  
<211> 371  
<212> PRT  
<213> Homo sapiens

<400> 171  
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Ala Leu Phe Leu Leu Val Leu His His Asn Phe Leu Ser Leu Ser  
20 25 30  
Ser Leu Leu Arg Asn Glu Val Thr Asp Ser Gly Ile Val Gly Pro  
35 40 45  
Gln Pro Ile Asp Phe Val Pro Asn Ala Leu Arg His Ala Val Asp  
50 55 60  
Gly Arg Gln Glu Glu Ile Pro Val Val Ile Ala Ala Ser Glu Asp  
65 70 75  
Arg Leu Gly Gly Ala Ile Ala Ala Ile Asn Ser Ile Gln His Asn  
80 85 90  
Thr Arg Ser Asn Val Ile Phe Tyr Ile Val Thr Leu Asn Asn Thr  
95 100 105  
Ala Asp His Leu Arg Ser Trp Leu Asn Ser Asp Ser Leu Lys Ser  
110 115 120  
Ile Arg Tyr Lys Ile Val Asn Phe Asp Pro Lys Leu Leu Glu Gly  
125 130 135  
Lys Val Lys Glu Asp Pro Asp Gln Gly Glu Ser Met Lys Pro Leu  
140 145 150  
Thr Phe Ala Arg Phe Tyr Leu Pro Ile Leu Val Pro Ser Ala Lys  
155 160 165  
Lys Ala Ile Tyr Met Asp Asp Asp Val Ile Val Gln Gly Asp Ile  
170 175 180  
Leu Ala Leu Tyr Asn Thr Ala Leu Lys Pro Gly His Ala Ala Ala





aagtaaagga ggatcctgac cagggggaat ccatgaaacc tttaaccttt 400  
gcaaggttct acttgccaat tctggttccc agcgcaaaga aggccatata 450  
catggatgat gatgtaattg tgcaaggtga tattcttgcc ctttacaata 500  
cagcactgaa gccaggacat gcagctgcat tttcagaaga ttgtgattca 550  
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<210> 173  
<211> 1866  
<212> DNA  
<213> Homo sapiens

<400> 173  
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aacgcggggcg gccagacaac gggctgggct ccggggcctg cggcgcgggc 150  
gctgagctgg cagggcggggt cggggcgcggt gctgcatccg catctcctcc 200  
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tcggagccct aaccaggggt gtctctgagc ctggtgggat ccccgagagc 300  
tcacatcact ttccgatcac ttcaaagtgg ttaaaaaacta atatttatat 350  
gacagaagaa aaagatgtca ttccgtaaag taaacatcat catcttggtc 400  
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tcaacctata ggactttgtc ccaaagtctc tccgacatgc agtagatggg 550  
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Cys Trp Ala Cys His Ser Arg Leu Pro Thr Leu Thr Leu Ser Leu  
35 40 45

Asn Pro Val Pro Thr Pro Ala Leu Ala Pro Val Leu Arg Arg Pro  
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His His Pro Arg Ser Pro Ala Met Lys Ala Ala Thr Cys Cys Ser  
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Pro Glu Gly Pro Trp Pro Ser Leu Glu Pro Arg Thr  
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|     |     |     |     |     | 95  |     |     |     |     |     | 100 |     |     |     |  |  | 105 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|-----|
| Glu | Leu | Phe | Gln | Ile | Thr | Asn | Lys | Ala | Ile | Ser | Ser | Ala | Pro | Phe |  |  |     |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |  |     |
| Leu | Leu | Phe | Gln | Pro | Leu | Trp | Thr | Phe | Ala | Ile | Leu | Ile | Phe | Phe |  |  |     |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |  |     |
| Trp | Val | Leu | Trp | Val | Ala | Val | Leu | Leu | Ser | Leu | Gly | Thr | Ala | Gly |  |  |     |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |  |     |
| Ala | Ala | Gln | Val | Met | Glu | Gly | Gly | Gln | Val | Glu | Tyr | Lys | Pro | Leu |  |  |     |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |  |     |
| Ser | Gly | Ile | Arg | Tyr | Met | Trp | Ser | Tyr | His | Leu | Ile | Gly | Leu | Ile |  |  |     |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |  |     |
| Trp | Thr | Ser | Glu | Phe | Ile | Leu | Ala | Cys | Gln | Gln | Met | Thr | Ile | Ala |  |  |     |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |  |     |
| Gly | Ala | Val | Val | Thr | Cys | Tyr | Phe | Asn | Arg | Ser | Lys | Asn | Asp | Pro |  |  |     |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |  |     |
| Pro | Asp | His | Pro | Ile | Leu | Ser | Ser | Leu | Ser | Ile | Leu | Phe | Phe | Tyr |  |  |     |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |  |     |
| His | Gln | Gly | Thr | Val | Val | Lys | Gly | Ser | Phe | Leu | Ile | Ser | Val | Val |  |  |     |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |     |
| Arg | Ile | Pro | Arg | Ile | Ile | Val | Met | Tyr | Met | Gln | Asn | Ala | Leu | Lys |  |  |     |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |  |     |
| Glu | Gln | Gln | His | Gly | Ala | Leu | Ser | Arg | Tyr | Leu | Phe | Arg | Cys | Cys |  |  |     |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |  |     |
| Tyr | Cys | Cys | Phe | Trp | Cys | Leu | Asp | Lys | Tyr | Leu | Leu | His | Leu | Asn |  |  |     |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |  |     |
| Gln | Asn | Ala | Tyr | Thr | Thr | Thr | Ala | Ile | Asn | Gly | Thr | Asp | Phe | Cys |  |  |     |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |  |     |
| Thr | Ser | Ala | Lys | Asp | Ala | Phe | Lys | Ile | Leu | Ser | Lys | Asn | Ser | Ser |  |  |     |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |  |     |
| His | Phe | Thr | Ser | Ile | Asn | Cys | Phe | Gly | Asp | Phe | Ile | Ile | Phe | Leu |  |  |     |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |  |     |
| Gly | Lys | Val | Leu | Val | Val | Cys | Phe | Thr | Val | Phe | Gly | Gly | Leu | Met |  |  |     |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |  |     |
| Ala | Phe | Asn | Tyr | Asn | Arg | Ala | Phe | Gln | Val | Trp | Ala | Val | Pro | Leu |  |  |     |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |  |     |
| Leu | Leu | Val | Ala | Phe | Phe | Ala | Tyr | Leu | Val | Ala | His | Ser | Phe | Leu |  |  |     |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |  |     |
| Ser | Val | Phe | Glu | Thr | Val | Leu | Asp | Ala | Leu | Phe | Leu | Cys | Phe | Ala |  |  |     |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |  |     |
| Val | Asp | Leu | Glu | Thr | Asn | Asp | Gly | Ser | Ser | Glu | Lys | Pro | Tyr | Phe |  |  |     |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |  |     |
| Met | Asp | Gln | Glu | Phe | Leu | Ser | Phe | Val | Lys | Arg | Ser | Asn | Lys | Leu |  |  |     |

|   |     |  |     |  |     |
|---|-----|--|-----|--|-----|
|   | 410 |  | 415 |  | 420 |
| Asn Asn Ala Arg Ala Gln Gln Asp Lys His Ser Leu Arg Asn Glu |     |  |     |  |     |
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 <213> Homo sapiens

<400> 179

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Arg | Thr | Val | Val | Leu | Thr | Met | Lys | Ala | Ser | Val | Ile | Glu | Met | 1   | 5   | 10  | 15 |
| Phe | Leu | Val | Leu | Leu | Val | Thr | Gly | Val | His | Ser | Asn | Lys | Glu | Thr | 20  | 25  | 30  |    |
| Ala | Lys | Lys | Ile | Lys | Arg | Pro | Lys | Phe | Thr | Val | Pro | Gln | Ile | Asn | 35  | 40  | 45  |    |
| Cys | Asp | Val | Lys | Ala | Gly | Lys | Ile | Ile | Asp | Pro | Glu | Phe | Ile | Val | 50  | 55  | 60  |    |
| Lys | Cys | Pro | Ala | Gly | Cys | Gln | Asp | Pro | Lys | Tyr | His | Val | Tyr | Gly | 65  | 70  | 75  |    |
| Thr | Asp | Val | Tyr | Ala | Ser | Tyr | Ser | Ser | Val | Cys | Gly | Ala | Ala | Val | 80  | 85  | 90  |    |
| His | Ser | Gly | Val | Leu | Asp | Asn | Ser | Gly | Gly | Lys | Ile | Leu | Val | Arg | 95  | 100 | 105 |    |
| Lys | Val | Ala | Gly | Gln | Ser | Gly | Tyr | Lys | Gly | Ser | Tyr | Ser | Asn | Gly | 110 | 115 | 120 |    |
| Val | Gln | Ser | Leu | Ser | Leu | Pro | Arg | Trp | Arg | Glu | Ser | Phe | Ile | Val | 125 | 130 | 135 |    |
| Leu | Glu | Ser | Lys | Pro | Lys | Lys | Gly | Val | Thr | Tyr | Pro | Ser | Ala | Leu | 140 | 145 | 150 |    |
| Thr | Tyr | Ser | Ser | Ser | Lys | Ser | Pro | Ala | Ala | Gln | Ala | Gly | Glu | Thr | 155 | 160 | 165 |    |
| Thr | Lys | Ala | Tyr | Gln | Arg | Pro | Pro | Ile | Pro | Gly | Thr | Thr | Ala | Gln | 170 | 175 | 180 |    |
| Pro | Val | Thr | Leu | Met | Gln | Leu | Leu | Ala | Val | Thr | Val | Ala | Val | Ala | 185 | 190 | 195 |    |
| Thr | Pro | Thr | Thr | Leu | Pro | Arg | Pro | Ser | Pro | Ser | Ala | Ala | Ser | Thr | 200 | 205 | 210 |    |
| Thr | Ser | Ile | Pro | Arg | Pro | Gln | Ser | Val | Gly | His | Arg | Ser | Gln | Glu | 215 | 220 | 225 |    |
| Met | Asp | Leu | Trp | Ser | Thr | Ala | Thr | Tyr | Thr | Ser | Ser | Gln | Asn | Arg | 230 | 235 | 240 |    |
| Pro | Arg | Ala | Asp | Pro | Gly | Ile | Gln | Arg | Gln | Asp | Pro | Ser | Gly | Ala | 245 | 250 | 255 |    |
| Ala | Phe | Gln | Lys | Pro | Val | Gly | Ala | Asp | Val | Ser | Leu | Gly | Leu | Val | 260 | 265 | 270 |    |
| Pro | Lys | Glu | Glu | Leu | Ser | Thr | Gln | Ser | Leu | Glu | Pro | Val | Ser | Leu | 275 | 280 | 285 |    |
| Gly | Asp | Pro | Asn | Cys | Lys | Ile | Asp | Leu | Ser | Phe | Leu | Ile | Asp | Gly |     |     |     |    |

| 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Thr | Ser | Ile | Gly | Lys | Arg | Arg | Phe | Arg | Ile | Gln | Lys | Gln | Leu |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Leu | Ala | Asp | Val | Ala | Gln | Ala | Leu | Asp | Ile | Gly | Pro | Ala | Gly | Pro |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Leu | Met | Gly | Val | Val | Gln | Tyr | Gly | Asp | Asn | Pro | Ala | Thr | His | Phe |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Asn | Leu | Lys | Thr | His | Thr | Asn | Ser | Arg | Asp | Leu | Lys | Thr | Ala | Ile |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Glu | Lys | Ile | Thr | Gln | Arg | Gly | Gly | Leu | Ser | Asn | Val | Gly | Arg | Ala |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Ile | Ser | Phe | Val | Thr | Lys | Asn | Phe | Phe | Ser | Lys | Ala | Asn | Gly | Asn |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Arg | Ser | Gly | Ala | Pro | Asn | Val | Val | Val | Val | Met | Val | Asp | Gly | Trp |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Pro | Thr | Asp | Lys | Val | Glu | Glu | Ala | Ser | Arg | Leu | Ala | Arg | Glu | Ser |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Gly | Ile | Asn | Ile | Phe | Phe | Ile | Thr | Ile | Glu | Gly | Ala | Ala | Glu | Asn |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Glu | Lys | Gln | Tyr | Val | Val | Glu | Pro | Asn | Phe | Ala | Asn | Lys | Ala | Val |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Cys | Arg | Thr | Asn | Gly | Phe | Tyr | Ser | Leu | His | Val | Gln | Ser | Trp | Phe |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Gly | Leu | His | Lys | Thr | Leu | Gln | Pro | Leu | Val | Lys | Arg | Val | Cys | Asp |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Thr | Asp | Arg | Leu | Ala | Cys | Ser | Lys | Thr | Cys | Leu | Asn | Ser | Ala | Asp |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |
| Ile | Gly | Phe | Val | Ile | Asp | Gly | Ser | Ser | Ser | Val | Gly | Thr | Gly | Asn |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |
| Phe | Arg | Thr | Val | Leu | Gln | Phe | Val | Thr | Asn | Leu | Thr | Lys | Glu | Phe |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |
| Glu | Ile | Ser | Asp | Thr | Asp | Thr | Arg | Ile | Gly | Ala | Val | Gln | Tyr | Thr |
|     |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |
| Tyr | Glu | Gln | Arg | Leu | Glu | Phe | Gly | Phe | Asp | Lys | Tyr | Ser | Ser | Lys |
|     |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |
| Pro | Asp | Ile | Leu | Asn | Ala | Ile | Lys | Arg | Val | Gly | Tyr | Trp | Ser | Gly |
|     |     |     |     | 560 |     |     |     |     | 565 |     |     |     |     | 570 |
| Gly | Thr | Ser | Thr | Gly | Ala | Ala | Ile | Asn | Phe | Ala | Leu | Glu | Gln | Leu |
|     |     |     |     | 575 |     |     |     |     | 580 |     |     |     |     | 585 |
| Phe | Lys | Lys | Ser | Lys | Pro | Asn | Lys | Arg | Lys | Leu | Met | Ile | Leu | Ile |
|     |     |     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |
| Thr | Asp | Gly | Arg | Ser | Tyr | Asp | Asp | Val | Arg | Ile | Pro | Ala | Met | Ala |

|                                     |                         |     |
|-------------------------------------|-------------------------|-----|
| 605                                 | 610                     | 615 |
| Ala His Leu Lys Gly Val Ile Thr Tyr | Ala Ile Gly Val Ala Trp |     |
| 620                                 | 625                     | 630 |
| Ala Ala Gln Glu Glu Leu Glu Val Ile | Ala Thr His Pro Ala Arg |     |
| 635                                 | 640                     | 645 |
| Asp His Ser Phe Phe Val Asp Glu Phe | Asp Asn Leu His Gln Tyr |     |
| 650                                 | 655                     | 660 |
| Val Pro Arg Ile Ile Gln Asn Ile Cys | Thr Glu Phe Asn Ser Gln |     |
| 665                                 | 670                     | 675 |
| Pro Arg Asn                         |                         |     |

<210> 180  
 <211> 1759  
 <212> DNA  
 <213> Homo sapiens

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<210> 181  
 <211> 541  
 <212> PRT  
 <213> Homo sapiens

<400> 181  
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 20 25 30  
 Asp Pro Ala His Tyr Ser Phe Ser Leu Thr Leu Ile Asp Ala Leu  
 35 40 45  
 Asp Thr Leu Leu Ile Leu Gly Asn Val Ser Glu Phe Gln Arg Val  
 50 55 60  
 Val Glu Val Leu Gln Asp Ser Val Asp Phe Asp Ile Asp Val Asn  
 65 70 75  
 Ala Ser Val Phe Glu Thr Asn Ile Arg Val Val Gly Gly Leu Leu  
 80 85 90  
 Ser Ala His Leu Leu Ser Lys Lys Ala Gly Val Glu Val Glu Ala  
 95 100 105  
 Gly Trp Pro Cys Ser Gly Pro Leu Leu Arg Met Ala Glu Glu Ala  
 110 115 120  
 Ala Arg Lys Leu Leu Pro Ala Phe Gln Thr Pro Thr Gly Met Pro

|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 125        |     |     |     |     | 130        |     |     |     |     | 135        |
| Tyr | Gly | Thr | Val | Asn<br>140 | Leu | Leu | His | Gly | Val<br>145 | Asn | Pro | Gly | Glu | Thr<br>150 |
| Pro | Val | Thr | Cys | Thr<br>155 | Ala | Gly | Ile | Gly | Thr<br>160 | Phe | Ile | Val | Glu | Phe<br>165 |
| Ala | Thr | Leu | Ser | Ser<br>170 | Leu | Thr | Gly | Asp | Pro<br>175 | Val | Phe | Glu | Asp | Val<br>180 |
| Ala | Arg | Val | Ala | Leu<br>185 | Met | Arg | Leu | Trp | Glu<br>190 | Ser | Arg | Ser | Asp | Ile<br>195 |
| Gly | Leu | Val | Gly | Asn<br>200 | His | Ile | Asp | Val | Leu<br>205 | Thr | Gly | Lys | Trp | Val<br>210 |
| Ala | Gln | Asp | Ala | Gly<br>215 | Ile | Gly | Ala | Gly | Val<br>220 | Asp | Ser | Tyr | Phe | Glu<br>225 |
| Tyr | Leu | Val | Lys | Gly<br>230 | Ala | Ile | Leu | Leu | Gln<br>235 | Asp | Lys | Lys | Leu | Met<br>240 |
| Ala | Met | Phe | Leu | Glu<br>245 | Tyr | Asn | Lys | Ala | Ile<br>250 | Arg | Asn | Tyr | Thr | Arg<br>255 |
| Phe | Asp | Asp | Trp | Tyr<br>260 | Leu | Trp | Val | Gln | Met<br>265 | Tyr | Lys | Gly | Thr | Val<br>270 |
| Ser | Met | Pro | Val | Phe<br>275 | Gln | Ser | Leu | Glu | Ala<br>280 | Tyr | Trp | Pro | Gly | Leu<br>285 |
| Gln | Ser | Leu | Ile | Gly<br>290 | Asp | Ile | Asp | Asn | Ala<br>295 | Met | Arg | Thr | Phe | Leu<br>300 |
| Asn | Tyr | Tyr | Thr | Val<br>305 | Trp | Lys | Gln | Phe | Gly<br>310 | Gly | Leu | Pro | Glu | Phe<br>315 |
| Tyr | Asn | Ile | Pro | Gln<br>320 | Gly | Tyr | Thr | Val | Glu<br>325 | Lys | Arg | Glu | Gly | Tyr<br>330 |
| Pro | Leu | Arg | Pro | Glu<br>335 | Leu | Ile | Glu | Ser | Ala<br>340 | Met | Tyr | Leu | Tyr | Arg<br>345 |
| Ala | Thr | Gly | Asp | Pro<br>350 | Thr | Leu | Leu | Glu | Leu<br>355 | Gly | Arg | Asp | Ala | Val<br>360 |
| Glu | Ser | Ile | Glu | Lys<br>365 | Ile | Ser | Lys | Val | Glu<br>370 | Cys | Gly | Phe | Ala | Thr<br>375 |
| Ile | Lys | Asp | Leu | Arg<br>380 | Asp | His | Lys | Leu | Asp<br>385 | Asn | Arg | Met | Glu | Ser<br>390 |
| Phe | Phe | Leu | Ala | Glu<br>395 | Thr | Val | Lys | Tyr | Leu<br>400 | Tyr | Leu | Leu | Phe | Asp<br>405 |
| Pro | Thr | Asn | Phe | Ile<br>410 | His | Asn | Asn | Gly | Ser<br>415 | Thr | Phe | Asp | Ala | Val<br>420 |
| Ile | Thr | Pro | Tyr | Gly<br>425 | Glu | Cys | Ile | Leu | Gly<br>430 | Ala | Gly | Gly | Tyr | Ile<br>435 |
| Phe | Asn | Thr | Glu | Ala        | His | Pro | Ile | Asp | Leu        | Ala | Ala | Leu | His | Cy         |

|                 |                     |                     |     |  |     |
|-----------------|---------------------|---------------------|-----|--|-----|
|                 | 440                 |                     | 445 |  | 450 |
| Cys Gln Arg Leu | Lys Glu Glu Gln Trp | Glu Val Glu Asp Leu | Met |  |     |
|                 | 455                 | 460                 | 465 |  |     |
| Arg Glu Phe Tyr | Ser Leu Lys Arg Ser | Arg Ser Lys Phe Gln | Lys |  |     |
|                 | 470                 | 475                 | 480 |  |     |
| Asn Thr Val Ser | Ser Gly Pro Trp Glu | Pro Pro Ala Arg Pro | Gly |  |     |
|                 | 485                 | 490                 | 495 |  |     |
| Thr Leu Phe Ser | Pro Glu Asn His Asp | Gln Ala Arg Glu Arg | Lys |  |     |
|                 | 500                 | 505                 | 510 |  |     |
| Pro Ala Lys Gln | Lys Val Pro Leu Leu | Ser Cys Pro Ser Gln | Pro |  |     |
|                 | 515                 | 520                 | 525 |  |     |
| Phe Thr Ser Lys | Leu Ala Leu Leu Gly | Gln Val Phe Leu Asp | Ser |  |     |
|                 | 530                 | 535                 | 540 |  |     |

Ser

<210> 182  
 <211> 2056  
 <212> DNA  
 <213> Homo sapiens

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 gctttatttt ggaaagaaac aatgttctag gtcaaactga gtctaccaa 250  
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 aaaaaa 2056

<210> 183  
 <211> 311  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> Signal peptide  
 <222> 1-29  
 <223> Signal peptide

<220>  
 <221> N-glycosylation sites  
 <222> 40-43, 134-137

[illegible]

<223> Tissue factor proteins homology

<223> Transmembrane domain

<223> Integrins alpha chain protein homology

Ala Ile Gly Arg Tyr Ser Ala Phe Ser Gln Thr Glu Cys Val Glu  
215 220 225



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Gln | Gly | Glu | Ala | Ile | Pro | Leu | Val | Leu | Ala | Leu | Phe | Ala | Phe |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Val | Gly | Phe | Met | Leu | Ile | Leu | Val | Val | Val | Pro | Leu | Phe | Val | Trp |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Lys | Met | Gly | Arg | Leu | Leu | Gln | Tyr | Ser | Cys | Cys | Pro | Val | Val | Val |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Leu | Pro | Asp | Thr | Leu | Lys | Ile | Thr | Asn | Ser | Pro | Gln | Lys | Leu | Ile |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Ser | Cys | Arg | Arg | Glu | Glu | Val | Asp | Ala | Cys | Ala | Thr | Ala | Val | Met |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Ser | Pro | Glu | Glu | Leu | Leu | Arg | Ala | Trp | Ile | Ser |     |     |     |     |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     |     |  |

<210> 184  
 <211> 808  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 654, 711, 748  
 <223> unknown base

<400> 184  
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 gaacccttg cgccgctgg ggtatctctc gagaaaagag aggcccaata 800  
 tgaccac 808

<210> 185  
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 185  
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<210> 186  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 186  
ccaggctcggg taaggatggt tgag 24

<210> 187  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 187  
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<210> 188  
<211> 1227  
<212> DNA  
<213> Homo sapiens

<400> 188  
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<210> 189  
 <211> 187  
 <212> PRT  
 <213> Homo sapiens

<400> 189  
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 35 40 45  
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 50 55 60  
 Asp Gln His Tyr Arg Ala Leu Gln Gln Leu Gln Arg Asp Leu Gly  
 65 70 75  
 Pro His His Phe Asn Val Leu Ala Phe Pro Cys Asn Gln Phe Gly  
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 Gln Gln Glu Pro Asp Ser Asn Lys Glu Ile Glu Ser Phe Ala Arg  
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 Arg Thr Tyr Ser Val Ser Phe Pro Met Phe Ser Lys Ile Ala Val  
 110 115 120  
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 Ser Gly Lys Glu Pro Thr Trp Asn Phe Trp Lys Tyr Leu Val Ala  
 140 145 150  
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<211> 615  
<212> PRT  
<213> Homo sapiens

<400> 194

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Ala | Val | Tyr | Val | Gly | Met | Leu | Arg | Leu | Gly | Arg | Leu | Cys | Ala | 1   | 5   | 10  | 15 |
| Gly | Ser | Ser | Gly | Val | Leu | Gly | Ala | Arg | Ala | Ala | Leu | Ser | Arg | Ser | 20  | 25  | 30  |    |
| Trp | Gln | Glu | Ala | Arg | Leu | Gln | Gly | Val | Arg | Phe | Leu | Ser | Ser | Arg | 35  | 40  | 45  |    |
| Glu | Val | Asp | Arg | Met | Val | Ser | Thr | Pro | Ile | Gly | Gly | Leu | Ser | Tyr | 50  | 55  | 60  |    |
| Val | Gln | Gly | Cys | Thr | Lys | Lys | His | Leu | Asn | Ser | Lys | Thr | Val | Gly | 65  | 70  | 75  |    |
| Gln | Cys | Leu | Glu | Thr | Thr | Ala | Gln | Arg | Val | Pro | Glu | Arg | Glu | Ala | 80  | 85  | 90  |    |
| Leu | Val | Val | Leu | His | Glu | Asp | Val | Arg | Leu | Thr | Phe | Ala | Gln | Leu | 95  | 100 | 105 |    |
| Lys | Glu | Glu | Val | Asp | Lys | Ala | Ala | Ser | Gly | Leu | Leu | Ser | Ile | Gly | 110 | 115 | 120 |    |
| Leu | Cys | Lys | Gly | Asp | Arg | Leu | Gly | Met | Trp | Gly | Pro | Asn | Ser | Tyr | 125 | 130 | 135 |    |
| Ala | Trp | Val | Leu | Met | Gln | Leu | Ala | Thr | Ala | Gln | Ala | Gly | Ile | Ile | 140 | 145 | 150 |    |
| Leu | Val | Ser | Val | Asn | Pro | Ala | Tyr | Gln | Ala | Met | Glu | Leu | Glu | Tyr | 155 | 160 | 165 |    |
| Val | Leu | Lys | Lys | Val | Gly | Cys | Lys | Ala | Leu | Val | Phe | Pro | Lys | Gln | 170 | 175 | 180 |    |
| Phe | Lys | Thr | Gln | Gln | Tyr | Tyr | Asn | Val | Leu | Lys | Gln | Ile | Cys | Pro | 185 | 190 | 195 |    |
| Glu | Val | Glu | Asn | Ala | Gln | Pro | Gly | Ala | Leu | Lys | Ser | Gln | Arg | Leu | 200 | 205 | 210 |    |
| Pro | Asp | Leu | Thr | Thr | Val | Ile | Ser | Val | Asp | Ala | Pro | Leu | Pro | Gly | 215 | 220 | 225 |    |
| Thr | Leu | Leu | Leu | Asp | Glu | Val | Val | Ala | Ala | Gly | Ser | Thr | Arg | Gln | 230 | 235 | 240 |    |
| His | Leu | Asp | Gln | Leu | Gln | Tyr | Asn | Gln | Gln | Phe | Leu | Ser | Cys | His |     |     |     |    |

|                 |                     |                     |     |  |     |
|-----------------|---------------------|---------------------|-----|--|-----|
|                 | 245                 |                     | 250 |  | 255 |
| Asp Pro Ile Asn | Ile Gln Phe Thr Ser | Gly Thr Thr Gly Ser | Pro |  |     |
|                 | 260                 |                     | 265 |  | 270 |
| Lys Gly Ala Thr | Leu Ser His Tyr Asn | Ile Val Asn Asn Ser | Asn |  |     |
|                 | 275                 |                     | 280 |  | 285 |
| Ile Leu Gly Glu | Arg Leu Lys Leu His | Glu Lys Thr Pro Glu | Gln |  |     |
|                 | 290                 |                     | 295 |  | 300 |
| Leu Arg Met Ile | Leu Pro Asn Pro Leu | Tyr His Cys Leu Gly | Ser |  |     |
|                 | 305                 |                     | 310 |  | 315 |
| Val Ala Gly Thr | Met Met Cys Leu Met | Tyr Gly Ala Thr Leu | Ile |  |     |
|                 | 320                 |                     | 325 |  | 330 |
| Leu Ala Ser Pro | Ile Phe Asn Gly Lys | Lys Ala Leu Glu Ala | Ile |  |     |
|                 | 335                 |                     | 340 |  | 345 |
| Ser Arg Glu Arg | Gly Thr Phe Leu Tyr | Gly Thr Pro Thr Met | Phe |  |     |
|                 | 350                 |                     | 355 |  | 360 |
| Val Asp Ile Leu | Asn Gln Pro Asp Phe | Ser Ser Tyr Asp Ile | Ser |  |     |
|                 | 365                 |                     | 370 |  | 375 |
| Thr Met Cys Gly | Gly Val Ile Ala Gly | Ser Pro Ala Pro Pro | Glu |  |     |
|                 | 380                 |                     | 385 |  | 390 |
| Leu Ile Arg Ala | Ile Ile Asn Lys Ile | Asn Met Lys Asp Leu | Val |  |     |
|                 | 395                 |                     | 400 |  | 405 |
| Val Ala Tyr Gly | Thr Thr Glu Asn Ser | Pro Val Thr Phe Ala | His |  |     |
|                 | 410                 |                     | 415 |  | 420 |
| Phe Pro Glu Asp | Thr Val Glu Gln Lys | Ala Glu Ser Val Gly | Arg |  |     |
|                 | 425                 |                     | 430 |  | 435 |
| Ile Met Pro His | Thr Glu Ala Arg Ile | Met Asn Met Glu Ala | Gly |  |     |
|                 | 440                 |                     | 445 |  | 450 |
| Thr Leu Ala Lys | Leu Asn Thr Pro Gly | Glu Leu Cys Ile Arg | Gly |  |     |
|                 | 455                 |                     | 460 |  | 465 |
| Tyr Cys Val Met | Leu Gly Tyr Trp Gly | Glu Pro Gln Lys Thr | Glu |  |     |
|                 | 470                 |                     | 475 |  | 480 |
| Glu Ala Val Asp | Gln Asp Lys Trp Tyr | Trp Thr Gly Asp Val | Ala |  |     |
|                 | 485                 |                     | 490 |  | 495 |
| Thr Met Asn Glu | Gln Gly Phe Cys Lys | Ile Val Gly Arg Ser | Lys |  |     |
|                 | 500                 |                     | 505 |  | 510 |
| Asp Met Ile Ile | Arg Gly Gly Glu Asn | Ile Tyr Pro Ala Glu | Leu |  |     |
|                 | 515                 |                     | 520 |  | 525 |
| Glu Asp Phe Phe | His Thr His Pro Lys | Val Gln Glu Val Gln | Val |  |     |
|                 | 530                 |                     | 535 |  | 540 |
| Val Gly Val Lys | Asp Asp Arg Met Gly | Glu Glu Ile Cys Ala | Cys |  |     |
|                 | 545                 |                     | 550 |  | 555 |
| Ile Arg Leu Lys | Asp Gly Glu Glu Thr | Thr Val Glu Glu Ile | Lys |  |     |

TOP SECRET

| 560 |     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Phe | Cys | Lys | Gly | Lys | Ile | Ser | His | Phe | Lys | Ile | Pro | Lys | Tyr |
|     |     |     |     | 575 |     |     |     |     | 580 |     |     |     |     | 585 |
| Ile | Val | Phe | Val | Thr | Asn | Tyr | Pro | Leu | Thr | Ile | Ser | Gly | Lys | Ile |
|     |     |     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |
| Gln | Lys | Phe | Lys | Leu | Arg | Glu | Gln | Met | Glu | Arg | His | Leu | Asn | Leu |
|     |     |     |     | 605 |     |     |     |     | 610 |     |     |     |     | 615 |

<210> 195  
<211> 642  
<212> DNA  
<213> Homo sapiens

<400> 195  
caactccaac attttaggag agcgccctgaa actgcatgag aagacaccag 50  
agcagttgcg gatgatcctg cccaaccccc tgtaccattg cctgggttcc 100  
gtggcaggca caatgatgtg tctgatgtac ggtgccaccc tcatcctggc 150  
ctctcccatc ttcaatggca agaaggcact ggaggccatc agcagagaga 200  
gaggcacctt cctgtatggt acccccacga tgttcgtgga cattctgaac 250  
cagccagact tctccagtta tgacatctcg accatgtgtg gaggtgtcat 300  
tgctgggtcc cctgcacctc cagagttgat ccgagccatc atcaacaaga 350  
taaatatgaa ggacctggtg gttgcttatg gaaccacaga gaacagtccc 400  
gtgacattcg cgcacttccc tgaggacact gtggagcaga aggcagaaaag 450  
cgtgggcaga attatgcctc acacggaggc gcggatcatg aacatggagg 500  
cagggacgct ggcaaagctg aacacgcccg gggagctgtg catccgaggg 550  
tactgcgtca tgctgggcta ctggggtgag cctcagaaga cagaggaagc 600  
agtggatcag gacaagtggg attggacagg agatgtcgcc ac 642

<210> 196  
<211> 1575  
<212> DNA  
<213> Homo sapiens

<400> 196  
gagcaggacg gagccatgga ccccgccagg aaagcaggtg cccaggccat 50  
gatctggact gcaggctggc tgctgctgct gctgcttcgc ggaggagcgc 100  
aggccctgga gtgctacagc tgcgtgcaga aagcagatga cggatgctcc 150  
ccgaacaaga tgaagacagt gaagtgcgcg ccgggctgtg acgtctgcac 200  
cgaggccgtg ggggcgggtg agaccatcca cggacaattc tcgctggcag 250  
tgcggggttg cggttcggga ctccccggca agaataaccg cggcctggat 300  
cttcacgggc ttctggcggt catccagctg cagcaatgcg ctcaggatcg 350





|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 35         |     |     |     |     | 40         |     |     |     |     | 45         |
| Pro | Asn | Lys | Met | Lys<br>50  | Thr | Val | Lys | Cys | Ala<br>55  | Pro | Gly | Val | Asp | Val<br>60  |
| Cys | Thr | Glu | Ala | Val<br>65  | Gly | Ala | Val | Glu | Thr<br>70  | Ile | His | Gly | Gln | Phe<br>75  |
| Ser | Leu | Ala | Val | Arg<br>80  | Gly | Cys | Gly | Ser | Gly<br>85  | Leu | Pro | Gly | Lys | Asn<br>90  |
| Asp | Arg | Gly | Leu | Asp<br>95  | Leu | His | Gly | Leu | Leu<br>100 | Ala | Phe | Ile | Gln | Leu<br>105 |
| Gln | Gln | Cys | Ala | Gln<br>110 | Asp | Arg | Cys | Asn | Ala<br>115 | Lys | Leu | Asn | Leu | Thr<br>120 |
| Ser | Arg | Ala | Leu | Asp<br>125 | Pro | Ala | Gly | Asn | Glu<br>130 | Ser | Ala | Tyr | Pro | Pro<br>135 |
| Asn | Gly | Val | Glu | Cys<br>140 | Tyr | Ser | Cys | Val | Gly<br>145 | Leu | Ser | Arg | Glu | Ala<br>150 |
| Cys | Gln | Gly | Thr | Ser<br>155 | Pro | Pro | Val | Val | Ser<br>160 | Cys | Tyr | Asn | Ala | Ser<br>165 |
| Asp | His | Val | Tyr | Lys<br>170 | Gly | Cys | Phe | Asp | Gly<br>175 | Asn | Val | Thr | Leu | Thr<br>180 |
| Ala | Ala | Asn | Val | Thr<br>185 | Val | Ser | Leu | Pro | Val<br>190 | Arg | Gly | Cys | Val | Gln<br>195 |
| Asp | Glu | Phe | Cys | Thr<br>200 | Arg | Asp | Gly | Val | Thr<br>205 | Gly | Pro | Gly | Phe | Thr<br>210 |
| Leu | Ser | Gly | Ser | Cys<br>215 | Cys | Gln | Gly | Ser | Arg<br>220 | Cys | Asn | Ser | Asp | Leu<br>225 |
| Arg | Asn | Lys | Thr | Tyr<br>230 | Phe | Ser | Pro | Arg | Ile<br>235 | Pro | Pro | Leu | Val | Arg<br>240 |
| Leu | Pro | Pro | Pro | Glu<br>245 | Pro | Thr | Thr | Val | Ala<br>250 | Ser | Thr | Thr | Ser | Val<br>255 |
| Thr | Thr | Ser | Thr | Ser<br>260 | Ala | Pro | Val | Arg | Pro<br>265 | Thr | Ser | Thr | Thr | Lys<br>270 |
| Pro | Met | Pro | Ala | Pro<br>275 | Thr | Ser | Gln | Thr | Pro<br>280 | Arg | Gln | Gly | Val | Glu<br>285 |
| His | Glu | Ala | Ser | Arg<br>290 | Asp | Glu | Glu | Pro | Arg<br>295 | Leu | Thr | Gly | Gly | Ala<br>300 |
| Ala | Gly | His | Gln | Asp<br>305 | Arg | Ser | Asn | Ser | Gly<br>310 | Gln | Tyr | Pro | Ala | Lys<br>315 |
| Gly | Gly | Pro | Gln | Gln<br>320 | Pro | His | Asn | Lys | Gly<br>325 | Cys | Val | Ala | Pro | Thr<br>330 |
| Ala | Gly | Leu | Ala | Ala<br>335 | Leu | Leu | Leu | Ala | Val<br>340 | Ala | Ala | Gly | Val | Leu<br>345 |
| Leu |     |     |     |            |     |     |     |     |            |     |     |     |     |            |

<210> 198  
<211> 1657  
<212> DNA  
<213> Homo sapiens

<400> 198  
cgggactcgg cgggtcctcc tgggagtctc ggaggggacc ggctgtgcag 50  
acgccatgga gttgggtgctg gtcttcctct gcagcctgct ggcccccatg 100  
gtcctggcca gtgcagctga aaaggagaag gaaatggacc cttttcatta 150  
tgattaccag accctgagga ttgggggact ggtgttcgct gtggtcctct 200  
tctcggttgg gatcctcctt atcctaagtc gcaggtgcaa gtgcagtttc 250  
aatcagaagc cccggggccc aggagatgag gaagcccagg tggagaacct 300  
catcacccgc aatgcaacag agccccagaa gcagagaact gaagtgcagc 350  
catcaggtgg aagcctctgg aacctgaggc ggctgcttga acctttggat 400  
gcaaattgtc atgcttaaga aaaccggcca cttcagcaac agccctttcc 450  
ccaggagaag ccaagaactt gtgtgtcccc caccctatcc cctctaacac 500  
cattcctcca cctgatgatg caactaacac ttgcctcccc actgcagcct 550  
gcggtcctgc ccacctcccg tgatgtgtgt gtgtgtgtgt gtgtgtgact 600  
gtgtgtgttt gctaactgtg gtctttgtgg ctacttgitt gtggatggta 650  
ttgtgtttgt tagtgaactg tggactcgct tcccaggca ggggctgagc 700  
cacatggcca tctgctctc cctgcccccg tggccctcca tcacctctg 750  
ctoctaggag gctgcttggt gcccgagacc agccccctcc cctgatttag 800  
ggatgcgtag ggtaagagca cgggcagtgg tcttcagtcg tottgggacc 850  
tggaaggtt tgcagcactt tgtcatcatt cttcatggac tcctttcact 900  
cctttaacaa aaaccttgct tccttatccc acctgatccc agtctgaagg 950  
tctcttagca actggagata caaagcaagg agctggtgag ccagcgttg 1000  
acgtcaggca ggctatgcc ttccgtggtt aatttcttcc caggggcttc 1050  
cacgaggagt ccccatctgc cccgcccctt cacagagcgc ccggggattc 1100  
caggcccagg gcttctactc tgcccctggg gaatgtgtcc cctgcatatc 1150  
ttctcagcaa taactccatg ggctctggga ccctaccct tccaaccttc 1200  
cctgcttctg agaattcaat ctacagccca gctcatccag atgcagacta 1250  
cagtcctgc aattgggtct ctggcaggca atagttgaag gactcctgtt 1300  
ccgttggggc cagcacaccg ggatggatgg agggagagca gaggcctttg 1350  
cttctctgcc tacgtccct tagatgggca gcagaggcaa ctcccgcatc 1400

ctttgctctg cctgtcgggtg gtcagagcgg tgagcgaggt gggttggaga 1450  
ctcagcaggc tccgtgcagc ccttggggaac agtgagaggt tgaaggcat 1500  
aacgagagt ggaactcaac ccagatcccg cccctcctgt cctctgtgtt 1550  
cccgcggaaa ccaaccaaac cgtgcgctgt gaccattgc tgttctctgt 1600  
atcgtgatct atcctcaaca acaacagaaa aaaggaataa aatatacctt 1650  
gtttcct 1657

<210> 199  
<211> 120  
<212> PRT  
<213> Homo sapiens

<400> 199  
Met Glu Leu Val Leu Val Phe Leu Cys Ser Leu Leu Ala Pro Met  
1 5 10 15  
Val Leu Ala Ser Ala Ala Glu Lys Glu Lys Glu Met Asp Pro Phe  
20 25 30  
His Tyr Asp Tyr Gln Thr Leu Arg Ile Gly Gly Leu Val Phe Ala  
35 40 45  
Val Val Leu Phe Ser Val Gly Ile Leu Leu Ile Leu Ser Arg Arg  
50 55 60  
Cys Lys Cys Ser Phe Asn Gln Lys Pro Arg Ala Pro Gly Asp Glu  
65 70 75  
Glu Ala Gln Val Glu Asn Leu Ile Thr Ala Asn Ala Thr Glu Pro  
80 85 90  
Gln Lys Gln Arg Thr Glu Val Gln Pro Ser Gly Gly Ser Leu Trp  
95 100 105  
Asn Leu Arg Arg Leu Leu Glu Pro Leu Asp Ala Asn Val Asp Ala  
110 115 120

<210> 200  
<211> 415  
<212> DNA  
<213> Homo sapiens

<400> 200  
aaacttgacg ccatgaagat cccggtcctt cctgccgtgg tgctcctctc 50  
cctcctggtg ctccactctg ccagaggagc caccctgggt ggtcctgagg 100  
aagaaagcac cattgagaat tatgcgtcac gacccgaggc ctttaacacc 150  
ccgttcctga acatcgacaa attgcgatct gcgtttaagg ctgatgagtt 200  
cctgaactgg cagccctct ttgagtctat caaaaggaaa cttcctttcc 250  
tcaactggga tgcctttcct aagctgaaag gactgaggag cgcaactcct 300  
gatgccagtg gaccatgacc tccactggaa gagggggcta gcgtgagcgc 350  
tgattctcaa cctaccataa ctctttcctg cctcaggaac tccaataaaa 400

cattttccat ccaaa 415

<210> 201

<211> 99

<212> PRT

<213> Homo sapiens

<400> 201

Met Lys Ile Pro Val Leu Pro Ala Val Val Leu Leu Ser Leu Leu  
1 5 10 15

Val Leu His Ser Ala Gln Gly Ala Thr Leu Gly Gly Pro Glu Glu  
20 25 30

Glu Ser Thr Ile Glu Asn Tyr Ala Ser Arg Pro Glu Ala Phe Asn  
35 40 45

Thr Pro Phe Leu Asn Ile Asp Lys Leu Arg Ser Ala Phe Lys Ala  
50 55 60

Asp Glu Phe Leu Asn Trp His Ala Leu Phe Glu Ser Ile Lys Arg  
65 70 75

Lys Leu Pro Phe Leu Asn Trp Asp Ala Phe Pro Lys Leu Lys Gly  
80 85 90

Leu Arg Ser Ala Thr Pro Asp Ala Gln  
95

<210> 202

<211> 678

<212> DNA

<213> Homo sapiens

<400> 202

cagttctgaa atcaatggag ttaatttagg gaatacaaac cagccatggg 50

gggtggagatt gcctttgcct cagtgattct cacctgcctc tcccttctgg 100

cagcaggagt ctcccagggt gttcttctcc agccagttcc aactcaggag 150

acaggtccca aggccatggg agatctctcc tgtggctttg ccggccactc 200

atgagagtgt ttttgtgtaa agtatttttt agaatactgt tgacttcttc 250

atgatttaat aaccatcctt tgcgaagttt tatgaggctt taggggaatg 300

tcaacctca aatttttggt atactagatg gcttccattt acccaccact 350

attttaaggt ccctttatct ttaggttcaa gggtcatttg acttgagaaa 400

gtgcocttct gcagcttcat tgattttggt tatcttcact attaattgta 450

acgattaataa aagaataaga gcacgcagac ctctaggaga atattttatc 500

cctgggtgcc cctgacacat ttatgtagtg atcccacaaa tgtgattggt 550

aatttaaagt ttattctaatt attagtagat tcagttgtga tgtaatatga 600

ataaccagaa totatttctt aaaagttttg agtatatttt tcaactagat 650

atttgtagat aaagactgaa tagtgatg 678

<210> 203  
 <211> 52  
 <212> PRT  
 <213> Homo sapiens

<400> 203  
 Met Gly Val Glu Ile Ala Phe Ala Ser Val Ile Leu Thr Cys Leu  
     1                    5                    10                    15  
 Ser Leu Leu Ala Ala Gly Val Ser Gln Val Val Leu Leu Gln Pro  
                     20                    25                    30  
 Val Pro Thr Gln Glu Thr Gly Pro Lys Ala Met Gly Asp Leu Ser  
                     35                    40                    45  
 Cys Gly Phe Ala Gly His Ser  
                     50

<210> 204  
 <211> 1917  
 <212> DNA  
 <213> Homo sapiens

<400> 204  
 ggggaatctg cagtaggtct gccggcgatg gagtgggtggg ctagctcgcc 50  
 gcttcggctc tggctgctgt tgttcctcct gccctcagcg cagggccgccc 100  
 agaaggagtc aggttcaaaa tggaaagtat ttattgacca aattaacagg 150  
 tctttggaga attacgaacc atgttcaagt caaaactgca gctgctacca 200  
 tgggtgtcata gaagaggatc taactccttt ccgaggaggc atctccagga 250  
 agatgatggc agaggtagtc agacggaagc tagggaccca ctatcagatc 300  
 actaagaaca gactgtaccg ggaaaatgac tgcattgtcc cctcaagggtg 350  
 tagtgggtgtt gagcacttta ttttggaagt gatcgggcgt ctccctgaca 400  
 tggagatggt gatcaatgta cgagattatc ctcagggttc taaatggatg 450  
 gagcctgcca tcccagtctt ctccttcagt aagacatcag agtaccatga 500  
 tatcatgtat cctgcttgga ctttttggga agggggacct gctgtttggc 550  
 caatttatcc tacagggtctt ggacgggtggg acctcttcag agaagatctg 600  
 gtaagggtcag cagcacagtg gccatggaaa aagaaaaact ctacagcata 650  
 tttccgagga tcaaggacaa gtccagaacg agatcctctc attcttctgt 700  
 ctcggaaaaa cccaaaactt gttgatgcag aatacaccaa aaaccaggcc 750  
 tggaaatcta tgaaagatac cttaggaaag ccagctgcta aggatgtcca 800  
 tcttgtggat cactgcaa atacaagtatct gtttaatttt cgaggcgtag 850  
 ctgcaagttt ccggttttaa cacctcttcc tgtgtggctc acttgttttc 900  
 catgttggtg atgagtggct agaattcttc tatccacagc tgaagccatg 950  
 gggttcactat atcccagtca aaacagatct ctccaatgtc caagagctgt 1000

tacaatttgt aaaagcaa at gatgatgtag ctcaagagat tgctgaaagg 1050  
 ggaagccagt ttattaggaa ccatttgcag atggatgaca tcacctgtta 1100  
 ctgggagaac ctcttgagtg aatactctaa attcctgtct tataatgtaa 1150  
 cgagaaggaa aggttatgat caaattattc ccaaaatggt gaaaactgaa 1200  
 ctatagtagt catcatagga ccatagtcct ctttgtggca acagatctca 1250  
 gatatacctac ggtgagaagc ttaccataag cttggctcct ataccttgaa 1300  
 tatctgctat caagccaaat acctggtttt ccttatcatg ctgcacccag 1350  
 agcaactctt gagaaagatt taaaatgtgt ctaatacact gatatgaagc 1400  
 agttcaactt tttggatgaa taaggaccag aaatcgtgag atgtggattt 1450  
 tgaacccaac tctacctttc attttcttaa gaccaatcac agcttgtgcc 1500  
 tcagatcatc cacctgtgtg agtccatcac tgtgaaattg actgtgtcca 1550  
 tgtgatgatg ccctttgtcc cattatttgg agcagaaaat tcgtcatttg 1600  
 gaagtagtac aactcattgc tggaattgtg aaattattca aggcgtgatc 1650  
 tctgtcactt tattttaatg taggaaaccc tatgggggtt atgaaaaata 1700  
 cttggggatc attctctgaa tggcttaagg aagcggtagc catgccatgc 1750  
 aatgatgtag gagttctctt ttgtaaaacc ataaactctg ttactcagga 1800  
 ggtttctata atgccacata gaaagaggcc aattgcatga gtaattattg 1850  
 caattggatt tcaggttccc ttttgtgcc ttcatgccct acttcttaat 1900  
 gcctctctaa agccaaa 1917

<210> 205  
 <211> 392  
 <212> PRT  
 <213> Homo sapiens

<400> 205  
 Met Glu Trp Trp Ala Ser Ser Pro Leu Arg Leu Trp Leu Leu Leu  
 1 5 10 15  
 Phe Leu Leu Pro Ser Ala Gln Gly Arg Gln Lys Glu Ser Gly Ser  
 20 25 30  
 Lys Trp Lys Val Phe Ile Asp Gln Ile Asn Arg Ser Leu Glu Asn  
 35 40 45  
 Tyr Glu Pro Cys Ser Ser Gln Asn Cys Ser Cys Tyr His Gly Val  
 50 55 60  
 Ile Glu Glu Asp Leu Thr Pro Phe Arg Gly Gly Ile Ser Arg Lys  
 65 70 75  
 Met Met Ala Glu Val Val Arg Arg Lys Leu Gly Thr His Tyr Gln  
 80 85 90  
 Ile Thr Lys Asn Arg Leu Tyr Arg Glu Asn Asp Cys Met Phe Pro

|   | 95  | 100 | 105 |
|---|-----|-----|-----|
| Ser Arg Cys Ser Gly Val Glu His Phe Ile Leu Glu Val Ile Gly | 110 | 115 | 120 |
| Arg Leu Pro Asp Met Glu Met Val Ile Asn Val Arg Asp Tyr Pro | 125 | 130 | 135 |
| Gln Val Pro Lys Trp Met Glu Pro Ala Ile Pro Val Phe Ser Phe | 140 | 145 | 150 |
| Ser Lys Thr Ser Glu Tyr His Asp Ile Met Tyr Pro Ala Trp Thr | 155 | 160 | 165 |
| Phe Trp Glu Gly Gly Pro Ala Val Trp Pro Ile Tyr Pro Thr Gly | 170 | 175 | 180 |
| Leu Gly Arg Trp Asp Leu Phe Arg Glu Asp Leu Val Arg Ser Ala | 185 | 190 | 195 |
| Ala Gln Trp Pro Trp Lys Lys Lys Asn Ser Thr Ala Tyr Phe Arg | 200 | 205 | 210 |
| Gly Ser Arg Thr Ser Pro Glu Arg Asp Pro Leu Ile Leu Leu Ser | 215 | 220 | 225 |
| Arg Lys Asn Pro Lys Leu Val Asp Ala Glu Tyr Thr Lys Asn Gln | 230 | 235 | 240 |
| Ala Trp Lys Ser Met Lys Asp Thr Leu Gly Lys Pro Ala Ala Lys | 245 | 250 | 255 |
| Asp Val His Leu Val Asp His Cys Lys Tyr Lys Tyr Leu Phe Asn | 260 | 265 | 270 |
| Phe Arg Gly Val Ala Ala Ser Phe Arg Phe Lys His Leu Phe Leu | 275 | 280 | 285 |
| Cys Gly Ser Leu Val Phe His Val Gly Asp Glu Trp Leu Glu Phe | 290 | 295 | 300 |
| Phe Tyr Pro Gln Leu Lys Pro Trp Val His Tyr Ile Pro Val Lys | 305 | 310 | 315 |
| Thr Asp Leu Ser Asn Val Gln Glu Leu Leu Gln Phe Val Lys Ala | 320 | 325 | 330 |
| Asn Asp Asp Val Ala Gln Glu Ile Ala Glu Arg Gly Ser Gln Phe | 335 | 340 | 345 |
| Ile Arg Asn His Leu Gln Met Asp Asp Ile Thr Cys Tyr Trp Glu | 350 | 355 | 360 |
| Asn Leu Leu Ser Glu Tyr Ser Lys Phe Leu Ser Tyr Asn Val Thr | 365 | 370 | 375 |
| Arg Arg Lys Gly Tyr Asp Gln Ile Ile Pro Lys Met Leu Lys Thr | 380 | 385 | 390 |
| Glu Leu   |     |     |     |

<210> 206



<211> 1425  
 <212> DNA  
 <213> Homo sapiens

<400> 206

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 <212> PRT  
 <213> Homo sapiens

<400> 207

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Pro | Ala | Leu | Leu | Leu | Ile | Pro | Ala | Ala | Leu | Ala | Ser | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Ile | Leu | Ala | Phe | Gly | Thr | Gly | Val | Glu | Phe | Val | Arg | Phe | Thr | Ser |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Leu | Arg | Pro | Leu | Leu | Gly | Gly | Ile | Pro | Glu | Ser | Gly | Gly | Pro | Asp |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Ala | Arg | Gln | Gly | Trp | Leu | Ala | Ala | Leu | Gln | Asp | Arg | Ser | Ile | Leu |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ala | Pro | Leu | Ala | Trp | Asp | Leu | Gly | Leu | Leu | Leu | Leu | Phe | Val | Gly |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Gln | His | Ser | Leu | Met | Ala | Ala | Glu | Arg | Val | Lys | Ala | Trp | Thr | Ser |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Arg | Tyr | Phe | Gly | Val | Leu | Gln | Arg | Ser | Leu | Tyr | Val | Ala | Cys | Thr |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Ala | Leu | Ala | Leu | Gln | Leu | Val | Met | Arg | Tyr | Trp | Glu | Pro | Ile | Pro |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Lys | Gly | Pro | Val | Leu | Trp | Glu | Ala | Arg | Ala | Glu | Pro | Trp | Ala | Thr |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Trp | Val | Pro | Leu | Leu | Cys | Phe | Val | Leu | His | Val | Ile | Ser | Trp | Leu |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Leu | Ile | Phe | Ser | Ile | Leu | Leu | Val | Phe | Asp | Tyr | Ala | Glu | Leu | Met |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Gly | Leu | Lys | Gln | Val | Tyr | Tyr | His | Val | Leu | Gly | Leu | Gly | Glu | Pro |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Leu | Ala | Leu | Lys | Ser | Pro | Arg | Ala | Leu | Arg | Leu | Phe | Ser | His | Leu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Arg | His | Pro | Val | Cys | Val | Glu | Leu | Leu | Thr | Val | Leu | Trp | Val | Val |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Pro | Thr | Leu | Gly | Thr | Asp | Arg | Leu | Leu | Leu | Ala | Phe | Leu | Leu | Thr |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Leu | Tyr | Leu | Gly | Leu | Ala | His | Gly | Leu | Asp | Gln | Gln | Asp | Leu | Arg |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Tyr | Leu | Arg | Ala | Gln | Leu | Gln | Arg | Lys | Leu | His | Leu | Leu | Ser | Arg |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Pro | Gln | Asp | Gly | Glu | Ala | Glu |     |     |     |     |     |     |     |     |
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<210> 208  
 <211> 2095  
 <212> DNA

<213> Homo sapiens

<400> 208

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caacaaaaaa cttaagcttt aatttcatct ggaattccac agttttctta 200  
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 tttaaaatta cttcaacttt gtgtttttaa atgttttgac gatttcaata 1900  
 caagataaaa aggatagtga atcattcttt acatgcaaac attttccagt 1950  
 tacttaactg atcagtttat tattgatata tcaactcatt aatgtaaagt 2000  
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<210> 209  
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 <212> PRT  
 <213> Homo sapiens

<400> 209  
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 Phe Val Met Trp Tyr Leu Ser Leu Pro His Tyr Asn Val Ile Glu  
 35 40 45  
 Arg Val Asn Trp Met Tyr Phe Tyr Glu Tyr Glu Pro Ile Tyr Arg  
 50 55 60  
 Gln Asp Phe His Phe Thr Leu Arg Glu His Ser Asn Cys Ser His  
 65 70 75  
 Gln Asn Pro Phe Leu Val Ile Leu Val Thr Ser His Pro Ser Asp  
 80 85 90  
 Val Lys Ala Arg Gln Ala Ile Arg Val Thr Trp Gly Glu Lys Lys  
 95 100 105  
 Ser Trp Trp Gly Tyr Glu Val Leu Thr Phe Phe Leu Leu Gly Gln  
 110 115 120  
 Glu Ala Glu Lys Glu Asp Lys Met Leu Ala Leu Ser Leu Glu Asp  
 125 130 135  
 Glu His Leu Leu Tyr Gly Asp Ile Ile Arg Gln Asp Phe Leu Asp  
 140 145 150  
 Thr Tyr Asn Asn Leu Thr Leu Lys Thr Ile Met Ala Phe Arg Trp  
 155 160 165

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Thr | Glu | Phe | Cys | Pro | Asn | Ala | Lys | Tyr | Val | Met | Lys | Thr | Asp |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Thr | Asp | Val | Phe | Ile | Asn | Thr | Gly | Asn | Leu | Val | Lys | Tyr | Leu | Leu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Asn | Leu | Asn | His | Ser | Glu | Lys | Phe | Phe | Thr | Gly | Tyr | Pro | Leu | Ile |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Asp | Asn | Tyr | Ser | Tyr | Arg | Gly | Phe | Tyr | Gln | Lys | Thr | His | Ile | Ser |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Tyr | Gln | Glu | Tyr | Pro | Phe | Lys | Val | Phe | Pro | Pro | Tyr | Cys | Ser | Gly |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Gly | Tyr | Ile | Met | Ser | Arg | Asp | Leu | Val | Pro | Arg | Ile | Tyr | Glu |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Met | Met | Gly | His | Val | Lys | Pro | Ile | Lys | Phe | Glu | Asp | Val | Tyr | Val |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Gly | Ile | Cys | Leu | Asn | Leu | Leu | Lys | Val | Asn | Ile | His | Ile | Pro | Glu |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Asp | Thr | Asn | Leu | Phe | Phe | Leu | Tyr | Arg | Ile | His | Leu | Asp | Val | Cys |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Gln | Leu | Arg | Arg | Val | Ile | Ala | Ala | His | Gly | Phe | Ser | Ser | Lys | Glu |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Ile | Ile | Thr | Phe | Trp | Gln | Val | Met | Leu | Arg | Asn | Thr | Thr | Cys | His |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |

Tyr

<210> 210  
 <211> 745  
 <212> DNA  
 <213> Homo sapiens

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 caacgtcaat gatgacaaca acaatgctgg aagtgggcag cagtcagtga 150  
 gtgtcaacaa tgaacacaat gtggccaatg ttgacaataa caacggatgg 200  
 gactcctgga attccatctg ggattatgga aatggctttg ctgcaaccag 250  
 actctttcaa aagaagacat gcattgtgca caaaatgaac aaggaagtca 300  
 tgccctccat tcaatccctt gatgcactgg tcaaggaaaa gaagcttcag 350  
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<212> PRT  
<213> Homo sapiens

<400> 211  
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Asn Asn Ala Gly Ser Gly Gln Gln Ser Val Ser Val Asn Asn Glu  
35 40 45  
His Asn Val Ala Asn Val Asp Asn Asn Asn Gly Trp Asp Ser Trp  
50 55 60  
Asn Ser Ile Trp Asp Tyr Gly Asn Gly Phe Ala Ala Thr Arg Leu  
65 70 75  
Phe Gln Lys Lys Thr Cys Ile Val His Lys Met Asn Lys Glu Val  
80 85 90  
Met Pro Ser Ile Gln Ser Leu Asp Ala Leu Val Lys Glu Lys Lys  
95 100 105  
Leu Gln Gly Lys Gly Pro Gly Gly Pro Pro Pro Lys Gly Leu Met  
110 115 120  
Tyr Ser Val Asn Pro Asn Lys Val Asp Asp Leu Ser Lys Phe Gly  
125 130 135  
Lys Asn Ile Ala Asn Met Cys Arg Gly Ile Pro Thr Tyr Met Ala  
140 145 150  
Glu Glu Met Gln Glu Ala Ser Leu Phe Phe Tyr Ser Gly Thr Cys  
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Asp Thr Val Glu Asn  
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<210> 212  
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<212> DNA  
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tcctagtatt aaattcttat tgcttactga tttttttgag ttaagagttg 200  
ttatatgcta gaatatgagg atgtgaatat aaataagaga agaaaaaaga 250  
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aaaagt 1706

<210> 213  
<211> 299  
<212> PRT  
<213> Homo sapiens

<400> 213  
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Gln Ile Pro Leu Pro Thr Arg Pro His Trp Phe Leu Leu Phe Gly  
35 40 45  
Thr Thr Glu Glu Glu Ile Gln Glu Ile Cys Ile Glu Thr Leu Arg  
50 55 60  
Leu Tyr Thr Arg Lys Lys Pro Asn Tyr Glu Leu Leu Glu Lys Glu  
65 70 75  
Val Glu Lys Arg Lys Val Ala Leu Gln Glu Ala Lys Leu Lys Ala  
80 85 90  
Lys Gly Leu Asn Pro Asp Gly Thr Pro Ala Leu Ser Thr Leu Gly  
95 100 105  
Gly Phe Ser Pro Ala Ser Lys Pro Ser Ser Pro Arg Glu Val Lys  
110 115 120  
Ala Glu Glu Lys Ser Pro Ile Ser Ile Asn Val Lys Thr Val Lys  
125 130 135  
Lys Glu Pro Glu Asp Arg Gln Gln Ala Ser Lys Ser Pro Tyr Asn  
140 145 150  
Gly Val Arg Lys Asp Ser Lys Arg Ser Arg Asn Ser Arg Ser Ala  
155 160 165  
Ser Arg Ser Arg Ser Arg Thr Arg Ser Arg Ser Arg Ser His Thr  
170 175 180  
Pro Arg Arg His Tyr Asn Asn Arg Arg Ser Arg Ser Gly Thr Tyr  
185 190 195  
Ser Ser Arg Ser Arg Ser Arg Ser Arg Ser His Ser Glu Ser Pro  
200 205 210  
Arg Arg His His Asn His Gly Ser Pro His Leu Lys Ala Lys His  
215 220 225  
Thr Arg Asp Asp Leu Lys Ser Ser Asn Arg His Gly His Lys Arg  
230 235 240  
Lys Lys Ser Arg Ser Arg Ser Gln Ser Lys Ser Arg Asp His Ser  
245 250 255  
Asp Ala Ala Lys Lys His Arg His Glu Arg Gly His His Arg Asp  
260 265 270  
Arg Arg Glu Arg Ser Arg Ser Phe Glu Arg Ser His Lys Ser Lys



His His Gly Gly Ser Arg Ser Gly His Gly Arg His Arg Arg  
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<210> 214

<211> 730

<212> DNA

<213> Homo sapiens

<220>

<221> unsure

<222> 72-73, 85, 91, 127, 226, 268, 454, 484, 513, 566, 663

<223> unknown base

<400> 214

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tcgcatatgg tcctagtatt aaattnttat tgcttactga tttttttgag 250  
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<211> 1807

<212> DNA

<213> Homo sapiens

<400> 215

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<211> 479  
 <212> PRT  
 <213> Homo sapiens

<400> 216

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Ala | Val | Leu | Gly | Val | Gln | Leu | Val | Val | Thr | Leu | Leu | Thr | Ala | 1   | 5   | 10  | 15 |
| Thr | Leu | Met | His | Arg | Leu | Ala | Pro | His | Cys | Ser | Phe | Ala | Arg | Trp | 20  | 25  | 30  |    |
| Leu | Leu | Cys | Asn | Gly | Ser | Leu | Phe | Arg | Tyr | Lys | His | Pro | Ser | Glu | 35  | 40  | 45  |    |
| Glu | Glu | Leu | Arg | Ala | Leu | Ala | Gly | Lys | Pro | Arg | Pro | Arg | Gly | Arg | 50  | 55  | 60  |    |
| Lys | Glu | Arg | Trp | Ala | Asn | Gly | Leu | Ser | Glu | Glu | Lys | Pro | Leu | Ser | 65  | 70  | 75  |    |
| Val | Pro | Arg | Asp | Ala | Pro | Phe | Gln | Leu | Glu | Thr | Cys | Pro | Leu | Thr | 80  | 85  | 90  |    |
| Thr | Val | Asp | Ala | Leu | Val | Leu | Arg | Phe | Phe | Leu | Glu | Tyr | Gln | Trp | 95  | 100 | 105 |    |
| Phe | Val | Asp | Phe | Ala | Val | Tyr | Ser | Gly | Gly | Val | Tyr | Leu | Phe | Thr | 110 | 115 | 120 |    |
| Glu | Ala | Tyr | Tyr | Tyr | Met | Leu | Gly | Pro | Ala | Lys | Glu | Thr | Asn | Ile | 125 | 130 | 135 |    |
| Ala | Val | Phe | Trp | Cys | Leu | Leu | Thr | Val | Thr | Phe | Ser | Ile | Lys | Met | 140 | 145 | 150 |    |
| Phe | Leu | Thr | Val | Thr | Arg | Leu | Tyr | Phe | Ser | Ala | Glu | Glu | Gly | Gly | 155 | 160 | 165 |    |
| Glu | Arg | Ser | Val | Cys | Leu | Thr | Phe | Ala | Phe | Leu | Phe | Leu | Leu | Leu | 170 | 175 | 180 |    |
| Ala | Met | Leu | Val | Gln | Val | Val | Arg | Glu | Glu | Thr | Leu | Glu | Leu | Gly | 185 | 190 | 195 |    |
| Leu | Glu | Pro | Gly | Leu | Ala | Ser | Met | Thr | Gln | Asn | Leu | Glu | Pro | Leu | 200 | 205 | 210 |    |
| Leu | Lys | Lys | Gln | Gly | Trp | Asp | Trp | Ala | Leu | Pro | Val | Ala | Lys | Leu | 215 | 220 | 225 |    |
| Ala | Ile | Arg | Val | Gly | Leu | Ala | Val | Val | Gly | Ser | Val | Leu | Gly | Ala | 230 | 235 | 240 |    |
| Phe | Leu | Thr | Phe | Pro | Gly | Leu | Arg | Leu | Ala | Gln | Thr | His | Arg | Asp | 245 | 250 | 255 |    |
| Ala | Leu | Thr | Met | Ser | Glu | Asp | Arg | Pro | Met | Leu | Gln | Phe | Leu | Leu | 260 | 265 | 270 |    |
| His | Thr | Ser | Phe | Leu | Ser | Pro | Leu | Phe | Ile | Leu | Trp | Leu | Trp | Thr | 275 | 280 | 285 |    |
| Lys | Pro | Ile | Ala | Arg | Asp | Phe | Leu | His | Gln | Pro | Pro | Phe | Gly | Glu |     |     |     |    |

| 290 |     |     |     |     |     |     |     |     |     | 295 |     |     |     |     | 300 |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Thr | Arg | Phe | Ser | Leu | Leu | Ser | Asp | Ser | Ala | Phe | Asp | Ser | Gly | Arg |     |  |  |  |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |  |  |  |  |
| Leu | Trp | Leu | Leu | Val | Val | Leu | Cys | Leu | Leu | Arg | Leu | Ala | Val | Thr |     |  |  |  |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |     |  |  |  |  |
| Arg | Pro | His | Leu | Gln | Ala | Tyr | Leu | Cys | Leu | Ala | Lys | Ala | Arg | Val |     |  |  |  |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |     |  |  |  |  |
| Glu | Gln | Leu | Arg | Arg | Glu | Ala | Gly | Arg | Ile | Glu | Ala | Arg | Glu | Ile |     |  |  |  |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |     |  |  |  |  |
| Gln | Gln | Arg | Val | Val | Arg | Val | Tyr | Cys | Tyr | Val | Thr | Val | Val | Ser |     |  |  |  |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |     |  |  |  |  |
| Leu | Gln | Tyr | Leu | Thr | Pro | Leu | Ile | Leu | Thr | Leu | Asn | Cys | Thr | Leu |     |  |  |  |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |     |  |  |  |  |
| Leu | Leu | Lys | Thr | Leu | Gly | Gly | Tyr | Ser | Trp | Gly | Leu | Gly | Pro | Ala |     |  |  |  |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |     |  |  |  |  |
| Pro | Leu | Leu | Ser | Pro | Asp | Pro | Ser | Ser | Ala | Ser | Ala | Ala | Pro | Ile |     |  |  |  |  |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |     |  |  |  |  |
| Gly | Ser | Gly | Glu | Asp | Glu | Val | Gln | Gln | Thr | Ala | Ala | Arg | Ile | Ala |     |  |  |  |  |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |     |  |  |  |  |
| Gly | Ala | Leu | Gly | Gly | Leu | Leu | Thr | Pro | Leu | Phe | Leu | Arg | Gly | Val |     |  |  |  |  |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |     |  |  |  |  |
| Leu | Ala | Tyr | Leu | Ile | Trp | Trp | Thr | Ala | Ala | Cys | Gln | Leu | Leu | Ala |     |  |  |  |  |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |     |  |  |  |  |
| Ser | Leu | Phe | Gly | Leu | Tyr | Phe | His | Gln | His | Leu | Ala | Gly | Ser |     |     |  |  |  |  |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     |     |     |  |  |  |  |

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 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 5, 146  
 <223> unknown base

<400> 217  
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 gctggctgct ctgtaacggc agtttggtcc gatacaagca cccgtnttga 150  
 ggaggagctt cgggccctgg cggggaagcc gaggcccaga ggcaggaaag 200  
 agcggtgggc caatggcctt agtgaggaga agccactgtc tgtgccccga 250  
 gatgccccgt tccagctgga gacctgcccc ctacagaccg tggatgccct 300  
 ggtcctgcgc ttcttcctgg agtaccagtg gtttgtggac tttgctgtgt 350

actcgggcg cgtgtacctc ttcacagagg cctactacta catgctggga 400  
ccagccaagg agactaacat tgctgtgttc tggcgcctgc tcacagtgc 450  
cttctccatc aagatgttcc tgacagtgc acggctgtac ttcagcgccg 500  
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<210> 218  
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<212> DNA  
<213> Homo sapiens

<400> 218  
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aaatatTTTT cagaagttaa a 2571

<210> 219

<211> 632

<212> PRT

<213> Homo sapiens

<400> 219

Met Lys Ala Leu Leu Leu Val Leu Pro Trp Leu Ser Pro Ala



|                                     |                         |     |
|-------------------------------------|-------------------------|-----|
| 320                                 | 325                     | 330 |
| Asp Arg Val Leu Ala Ile Asn Gly His | Asp Leu Arg Tyr Gly Ser |     |
| 335                                 | 340                     | 345 |
| Pro Glu Ser Ala Ala His Leu Ile Gln | Ala Ser Glu Arg Arg Val |     |
| 350                                 | 355                     | 360 |
| His Leu Val Val Ser Arg Gln Val Arg | Gln Arg Ser Pro Asp Ile |     |
| 365                                 | 370                     | 375 |
| Phe Gln Glu Ala Gly Trp Asn Ser Asn | Gly Ser Trp Ser Pro Gly |     |
| 380                                 | 385                     | 390 |
| Pro Gly Glu Arg Ser Asn Thr Pro Lys | Pro Leu His Pro Thr Ile |     |
| 395                                 | 400                     | 405 |
| Thr Cys His Glu Lys Val Val Asn Ile | Gln Lys Asp Pro Gly Glu |     |
| 410                                 | 415                     | 420 |
| Ser Leu Gly Met Thr Val Ala Gly Gly | Ala Ser His Arg Glu Trp |     |
| 425                                 | 430                     | 435 |
| Asp Leu Pro Ile Tyr Val Ile Ser Val | Glu Pro Gly Gly Val Ile |     |
| 440                                 | 445                     | 450 |
| Ser Arg Asp Gly Arg Ile Lys Thr Gly | Asp Ile Leu Leu Asn Val |     |
| 455                                 | 460                     | 465 |
| Asp Gly Val Glu Leu Thr Glu Val Ser | Arg Ser Glu Ala Val Ala |     |
| 470                                 | 475                     | 480 |
| Leu Leu Lys Arg Thr Ser Ser Ser Ile | Val Leu Lys Ala Leu Glu |     |
| 485                                 | 490                     | 495 |
| Val Lys Glu Tyr Glu Pro Gln Glu Asp | Cys Ser Ser Pro Ala Ala |     |
| 500                                 | 505                     | 510 |
| Leu Asp Ser Asn His Asn Met Ala Pro | Pro Ser Asp Trp Ser Pro |     |
| 515                                 | 520                     | 525 |
| Ser Trp Val Met Trp Leu Glu Leu Pro | Arg Cys Leu Tyr Asn Cys |     |
| 530                                 | 535                     | 540 |
| Lys Asp Ile Val Leu Arg Arg Asn Thr | Ala Gly Ser Leu Gly Phe |     |
| 545                                 | 550                     | 555 |
| Cys Ile Val Gly Gly Tyr Glu Glu Tyr | Asn Gly Asn Lys Pro Phe |     |
| 560                                 | 565                     | 570 |
| Phe Ile Lys Ser Ile Val Glu Gly Thr | Pro Ala Tyr Asn Asp Gly |     |
| 575                                 | 580                     | 585 |
| Arg Ile Arg Cys Gly Asp Ile Leu Leu | Ala Val Asn Gly Arg Ser |     |
| 590                                 | 595                     | 600 |
| Thr Ser Gly Met Ile His Ala Cys Leu | Ala Arg Leu Leu Lys Glu |     |
| 605                                 | 610                     | 615 |
| Leu Lys Gly Arg Ile Thr Leu Thr Ile | Val Ser Trp Pro Gly Thr |     |
| 620                                 | 625                     | 630 |
| Phe Leu                             |                         |     |



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 <211> 773  
 <212> DNA  
 <213> Homo sapiens

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 gtttttaaca tcatcagccc aagcaacaat ggtggcaatg ttcaggagac 200  
 agtgacaatt gataatgaaa aaaataccgc catcgttaac atccatgcag 250  
 gatcatgctc ttctaccaca atttttgact ataaacatgg ctacattgca 300  
 tccaggggtgc tctcccgaag agcctgcttt atcctgaaga tggaccatca 350  
 gaacatccct cctctgaaca atctccaatg gtacatctat gagaaacagg 400  
 ctctggacaa catgttctcc aacaaataca cctgggtcaa gtacaaccct 450  
 ctggagtctc tgatcaaaga cgtggattgg ttctgcttg ggtcaccocat 500  
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 acacacataa tgtcgggtgct ggaggctgtg caaaggctgg gctcctgggc 600  
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 ctcttgtttt atcttttcaa agaaatacat ccttgggtta cactcaaaag 700  
 tcaaattaaa ttctttccca atgccccaac taattttgag attcagtcag 750  
 aaaatataaa tgctgtattt ata 773

<210> 221  
 <211> 184  
 <212> PRT  
 <213> Homo sapiens

<400> 221  
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 20 25 30  
 Asn Asn Gly Gly Asn Val Gln Glu Thr Val Thr Ile Asp Asn Glu  
 35 40 45  
 Lys Asn Thr Ala Ile Val Asn Ile His Ala Gly Ser Cys Ser Ser  
 50 55 60  
 Thr Thr Ile Phe Asp Tyr Lys His Gly Tyr Ile Ala Ser Arg Val  
 65 70 75  
 Leu Ser Arg Arg Ala Cys Phe Ile Leu Lys Met Asp His Gln Asn  
 80 85 90

Ile Pro Pro Leu Asn Asn Leu Gln Trp Tyr Ile Tyr Glu Lys Gln  
95 100 105

Ala Leu Asp Asn Met Phe Ser Asn Lys Tyr Thr Trp Val Lys Tyr  
110 115 120

Asn Pro Leu Glu Ser Leu Ile Lys Asp Val Asp Trp Phe Leu Leu  
125 130 135

Gly Ser Pro Ile Glu Lys Leu Cys Lys His Ile Pro Leu Tyr Lys  
140 145 150

Gly Glu Val Val Glu Asn Thr His Asn Val Gly Ala Gly Gly Cys  
155 160 165

Ala Lys Ala Gly Leu Leu Gly Ile Leu Gly Ile Ser Ile Cys Ala  
170 175 180

Asp Ile His Val

<210> 222  
<211> 992  
<212> DNA  
<213> Homo sapiens

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tgccagcagc ttctccaagg cacgggagga agaaattacc cctgtggtct 150  
ccattgccta caaagtcttg gaagttttcc ccaaaggccg ctgggtgctc 200  
ataacctgct gtgcacccca gccaccaccg cccatcacct attccctctg 250  
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aggtggtgac cagaagatgg aggactggca gggccccctg gagagcccca 750  
tccttgccct gccgctctac aggagcacc gccgtctgag tgaagaggag 800  
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<210> 224  
 <211> 1297  
 <212> DNA  
 <213> Homo sapiens

<400> 224  
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 ctctctttgc tatgacatca ccgtcatccc taagttcaga cctggaccac 150  
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 gactgtggca acaagacagt cacacctgtc agtcccctgg ggaagaaaact 250  
 aaatgtcaca acggcctgga aagcacagaa ccagtgactg agagaggtgg 300  
 tggacatact tacagagcaa ctgcgtgaca ttcagctgga gaattacaca 350  
 cccaaggaac ccctcacctc gcaggcaagg atgtcttctg agcagaaaagc 400  
 tgaaggacac agcagtggat cttggcagtt cagtttcgat gggcagatct 450  
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 gccagaaaga tgaaagaaaa gtgggagaat gacaagggtg tggccatgtc 550  
 cttccattac ttctcaatgg gagactgtat aggatggctt gaggacttct 600  
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 atgtcctcag gcacaacca actcagggcc acagccacca ccctcatcct 700  
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 gagagtcctt tagagtgaca ggttaaagct gataccaaaa ggctcctgtg 800  
 agcacggtct tgatcaaact cgcccttctg tctggccagc tgcccacgac 850  
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 agttatacct aacatattat gcaattttct cttggtgcta cctgatggaa 1000  
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 tggggattct ttccgtgtcc tgaaagagaa tttttaaatt atttaataag 1200  
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<210> 225  
 <211> 246  
 <212> PRT  
 <213> Homo sapiens

<400> 225

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Ala | Ala | Ala | Ala | Ala | Thr | Lys | Ile | Leu | Leu | Cys | Leu | Pro | Leu |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |
| Leu | Leu | Leu | Leu | Ser | Gly | Trp | Ser | Arg | Ala | Gly | Arg | Ala | Asp | Pro |  |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| His | Ser | Leu | Cys | Tyr | Asp | Ile | Thr | Val | Ile | Pro | Lys | Phe | Arg | Pro |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Gly | Pro | Arg | Trp | Cys | Ala | Val | Gln | Gly | Gln | Val | Asp | Glu | Lys | Thr |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Phe | Leu | His | Tyr | Asp | Cys | Gly | Asn | Lys | Thr | Val | Thr | Pro | Val | Ser |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Pro | Leu | Gly | Lys | Lys | Leu | Asn | Val | Thr | Thr | Ala | Trp | Lys | Ala | Gln |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Asn | Pro | Val | Leu | Arg | Glu | Val | Val | Asp | Ile | Leu | Thr | Glu | Gln | Leu |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Arg | Asp | Ile | Gln | Leu | Glu | Asn | Tyr | Thr | Pro | Lys | Glu | Pro | Leu | Thr |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Leu | Gln | Ala | Arg | Met | Ser | Cys | Glu | Gln | Lys | Ala | Glu | Gly | His | Ser |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Ser | Gly | Ser | Trp | Gln | Phe | Ser | Phe | Asp | Gly | Gln | Ile | Phe | Leu | Leu |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Phe | Asp | Ser | Glu | Lys | Arg | Met | Trp | Thr | Thr | Val | His | Pro | Gly | Ala |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Arg | Lys | Met | Lys | Glu | Lys | Trp | Glu | Asn | Asp | Lys | Val | Val | Ala | Met |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Ser | Phe | His | Tyr | Phe | Ser | Met | Gly | Asp | Cys | Ile | Gly | Trp | Leu | Glu |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Asp | Phe | Leu | Met | Gly | Met | Asp | Ser | Thr | Leu | Glu | Pro | Ser | Ala | Gly |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Ala | Pro | Leu | Ala | Met | Ser | Ser | Gly | Thr | Thr | Gln | Leu | Arg | Ala | Thr |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Ala | Thr | Thr | Leu | Ile | Leu | Cys | Cys | Leu | Leu | Ile | Ile | Leu | Pro | Cys |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Phe | Ile | Leu | Pro | Gly | Ile |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 245 |     |     |     |     |     |     |     |     |     |     |  |

<210> 226

<211> 735

<212> DNA

<213> Homo sapiens

<400> 226

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 caagttatat accgtggaat ggagttgatc ccaaccataa catcgtggag 150

gggttttaatt ttggtggtag ccctcaccca attctggtgt ggctttcttt 200  
 gcagaggatt ccaccttcaa aatcatgaac tctggctgtt gatcaaaaga 250  
 gaatttggat tctactctaa aagtcaatat aggacttggc aaaagaagct 300  
 agcagaagac tcaacctggc ctcccataaa caggacagat tattcaggtg 350  
 atggcaaaaaa tggattctac atcaacggag gctatgaaag ccatgaacag 400  
 attccaaaaa gaaaactcaa attgggaggc caaccacag aacagcattt 450  
 ctggggccagg ctgtaatcag aattgtcgtc gtacatgctc aacagcattg 500  
 cttttttccc caaaattaac acattgtgga gaagtgatga tactctcccc 550  
 ttacctttcc tctctccatt caagcattca aagtatattt tcaatgaatt 600  
 aaaccttgca gcaagggacc ttagataggc ttattctgac tgtatgcttt 650  
 accaatgaga gaaaaaaatg catttcctgt atcatccttt tcaataaact 700  
 gtattcattt tgaaaaaaa aaaaaaaaaa aaaaa 735

<210> 227  
 <211> 115  
 <212> PRT  
 <213> Homo sapiens

<400> 227  
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 Phe His Leu Gln Asn His Glu Leu Trp Leu Leu Ile Lys Arg Glu  
 35 40 45  
 Phe Gly Phe Tyr Ser Lys Ser Gln Tyr Arg Thr Trp Gln Lys Lys  
 50 55 60  
 Leu Ala Glu Asp Ser Thr Trp Pro Pro Ile Asn Arg Thr Asp Tyr  
 65 70 75  
 Ser Gly Asp Gly Lys Asn Gly Phe Tyr Ile Asn Gly Gly Tyr Glu  
 80 85 90  
 Ser His Glu Gln Ile Pro Lys Arg Lys Leu Lys Leu Gly Gly Gln  
 95 100 105  
 Pro Thr Glu Gln His Phe Trp Ala Arg Leu  
 110 115

<210> 228  
 <211> 2185  
 <212> DNA  
 <213> Homo sapiens

<400> 228  
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 cacaccatga agctcttgtg gcaggtaact gtgcaccacc acacctggaa 100



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 tgttgagata atccaggtgg acgaagacat cccagcagca acatccgcag 1800  
 cagcaacagc agctccgtcc ggtgtatcag gtgagggggc agtagtgctg 1850  
 cccacaattc atgaccatat taactacaac acctacaaac cagcacatgg 1900  
 ggcccactgg acagaaaaca gcctggggaa ctctctgcac cccacagtca 1950  
 ccactatctc tgaaccttat ataattcaga cccataccaa ggacaaggta 2000  
 caggaaactc aaatatgact cccctcccc aaaaaactta taaaatgcaa 2050  
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 attatattaa aatttaaaga caaaaagtca aaaca 2185

<210> 229  
 <211> 653  
 <212> PRT  
 <213> Homo sapiens

<400> 229  
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 Leu Cys Ala Ala Ile Ala Ala Ala Ala Ser Ala Gly Pro Gln Asn  
 35 40 45  
 Cys Pro Ser Val Cys Ser Cys Ser Asn Gln Phe Ser Lys Val Val  
 50 55 60  
 Cys Thr Arg Arg Gly Leu Ser Glu Val Pro Gln Gly Ile Pro Ser  
 65 70 75  
 Asn Thr Arg Tyr Leu Asn Leu Met Glu Asn Asn Ile Gln Met Ile  
 80 85 90  
 Gln Ala Asp Thr Phe Arg His Leu His His Leu Glu Val Leu Gln  
 95 100 105  
 Leu Gly Arg Asn Ser Ile Arg Gln Ile Glu Val Gly Ala Phe Asn  
 110 115 120  
 Gly Leu Ala Ser Leu Asn Thr Leu Glu Leu Phe Asp Asn Trp Leu  
 125 130 135  
 Thr Val Ile Pro Ser Gly Ala Phe Glu Tyr Leu Ser Lys Leu Arg  
 140 145 150  
 Glu Leu Trp Leu Arg Asn Asn Pro Ile Glu Ser Ile Pro Ser Tyr  
 155 160 165  
 Ala Phe Asn Arg Val Pro Ser Leu Met Arg Leu Asp Leu Gly Glu  
 170 175 180  
 Leu Lys Lys Leu Glu Tyr Ile Ser Glu Gly Ala Phe Glu Gly Leu



| 185 |     |     |     |     | 190 |     |     |     |     | 195 |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Asn | Leu | Lys | Tyr | Leu | Asn | Leu | Gly | Met | Cys | Asn | Ile | Lys | Asp |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Met | Pro | Asn | Leu | Thr | Pro | Leu | Val | Gly | Leu | Glu | Glu | Leu | Glu | Met |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Ser | Gly | Asn | His | Phe | Pro | Glu | Ile | Arg | Pro | Gly | Ser | Phe | His | Gly |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Ser | Ser | Leu | Lys | Lys | Leu | Trp | Val | Met | Asn | Ser | Gln | Val | Ser |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Leu | Ile | Glu | Arg | Asn | Ala | Phe | Asp | Gly | Leu | Ala | Ser | Leu | Val | Glu |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Leu | Asn | Leu | Ala | His | Asn | Asn | Leu | Ser | Ser | Leu | Pro | His | Asp | Leu |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Phe | Thr | Pro | Leu | Arg | Tyr | Leu | Val | Glu | Leu | His | Leu | His | His | Asn |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Pro | Trp | Asn | Cys | Asp | Cys | Asp | Ile | Leu | Trp | Leu | Ala | Trp | Trp | Leu |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Arg | Glu | Tyr | Ile | Pro | Thr | Asn | Ser | Thr | Cys | Cys | Gly | Arg | Cys | His |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Ala | Pro | Met | His | Met | Arg | Gly | Arg | Tyr | Leu | Val | Glu | Val | Asp | Gln |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Ala | Ser | Phe | Gln | Cys | Ser | Ala | Pro | Phe | Ile | Met | Asp | Ala | Pro | Arg |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Asp | Leu | Asn | Ile | Ser | Glu | Gly | Arg | Met | Ala | Glu | Leu | Lys | Cys | Arg |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Thr | Pro | Pro | Met | Ser | Ser | Val | Lys | Trp | Leu | Leu | Pro | Asn | Gly | Thr |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Val | Leu | Ser | His | Ala | Ser | Arg | His | Pro | Arg | Ile | Ser | Val | Leu | Asn |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Asp | Gly | Thr | Leu | Asn | Phe | Ser | His | Val | Leu | Leu | Ser | Asp | Thr | Gly |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Val | Tyr | Thr | Cys | Met | Val | Thr | Asn | Val | Ala | Gly | Asn | Ser | Asn | Ala |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Ser | Ala | Tyr | Leu | Asn | Val | Ser | Thr | Ala | Glu | Leu | Asn | Thr | Ser | Asn |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Tyr | Ser | Phe | Phe | Thr | Thr | Val | Thr | Val | Glu | Thr | Thr | Glu | Ile | Ser |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Pro | Glu | Asp | Thr | Thr | Arg | Lys | Tyr | Lys | Pro | Val | Pro | Thr | Thr | Ser |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Thr | Gly | Tyr | Gln | Pro | Ala | Tyr | Thr | Thr | Ser | Thr | Thr | Val | Leu | Ile |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |
| Gln | Thr | Thr | Arg | Val | Pro | Lys | Gln | Val | Ala | Val | Pro | Ala | Thr | Asp |

| 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Thr | Asp | Lys | Met | Gln | Thr | Ser | Leu | Asp | Glu | Val | Met | Lys | Thr |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |
| Thr | Lys | Ile | Ile | Ile | Gly | Cys | Phe | Val | Ala | Val | Thr | Leu | Leu | Ala |
|     |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |
| Ala | Ala | Met | Leu | Ile | Val | Phe | Tyr | Lys | Leu | Arg | Lys | Arg | His | Gln |
|     |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |
| Gln | Arg | Ser | Thr | Val | Thr | Ala | Ala | Arg | Thr | Val | Glu | Ile | Ile | Gln |
|     |     |     |     | 560 |     |     |     |     | 565 |     |     |     |     | 570 |
| Val | Asp | Glu | Asp | Ile | Pro | Ala | Ala | Thr | Ser | Ala | Ala | Ala | Thr | Ala |
|     |     |     |     | 575 |     |     |     |     | 580 |     |     |     |     | 585 |
| Ala | Pro | Ser | Gly | Val | Ser | Gly | Glu | Gly | Ala | Val | Val | Leu | Pro | Thr |
|     |     |     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |
| Ile | His | Asp | His | Ile | Asn | Tyr | Asn | Thr | Tyr | Lys | Pro | Ala | His | Gly |
|     |     |     |     | 605 |     |     |     |     | 610 |     |     |     |     | 615 |
| Ala | His | Trp | Thr | Glu | Asn | Ser | Leu | Gly | Asn | Ser | Leu | His | Pro | Thr |
|     |     |     |     | 620 |     |     |     |     | 625 |     |     |     |     | 630 |
| Val | Thr | Thr | Ile | Ser | Glu | Pro | Tyr | Ile | Ile | Gln | Thr | His | Thr | Lys |
|     |     |     |     | 635 |     |     |     |     | 640 |     |     |     |     | 645 |
| Asp | Lys | Val | Gln | Glu | Thr | Gln | Ile |     |     |     |     |     |     |     |
|     |     |     |     | 650 |     |     |     |     |     |     |     |     |     |     |

<210> 230  
 <211> 2846  
 <212> DNA  
 <213> Homo sapiens

<400> 230  
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 tacacagtca ttaatgaagc ctgccctgga gcagagtgga atatcatgtg 150  
 tcgggagtgc tgtgaatatg atcagattga gtgcgtctgc cccgaaaga 200  
 gggaagtcgt gggttatacc atcccttgct gcaggaatga ggagaatgag 250  
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 aggggttcta ctgtgcagag tgccgagcag gctggtacgg aggagactgc 400  
 atgcgatgtg gccaggttct gcgagcccca aagggtcaga ttttgttgga 450  
 aagctatccc ctaaagtctc actgtgaatg gaccattcat gctaaacctg 500  
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 cccttgtttc catgacggca cgtgcgtcct tgacaaggct ggatcttaca 800  
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 aaaagaactt gccagcagaa tggagagtgg tcagggaac agcccatctg 1050  
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<210> 231  
<211> 720  
<212> PRT  
<213> Homo sapiens

<400> 231  
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Glu Ala Cys Pro Gly Ala Glu Trp Asn Ile Met Cys Arg Glu Cys  
35 40 45  
Cys Glu Tyr Asp Gln Ile Glu Cys Val Cys Pro Gly Lys Arg Glu  
50 55 60  
Val Val Gly Tyr Thr Ile Pro Cys Cys Arg Asn Glu Glu Asn Glu  
65 70 75  
Cys Asp Ser Cys Leu Ile His Pro Gly Cys Thr Ile Phe Glu Asn  
80 85 90  
Cys Lys Ser Cys Arg Asn Gly Ser Trp Gly Gly Thr Leu Asp Asp  
95 100 105  
Phe Tyr Val Lys Gly Phe Tyr Cys Ala Glu Cys Arg Ala Gly Trp  
110 115 120  
Tyr Gly Gly Asp Cys Met Arg Cys Gly Gln Val Leu Arg Ala Pro  
125 130 135  
Lys Gly Gln Ile Leu Leu Glu Ser Tyr Pro Leu Asn Ala His Cys  
140 145 150  
Glu Trp Thr Ile His Ala Lys Pro Gly Phe Val Ile Gln Leu Arg  
155 160 165





| 1. <i>Staphylococcus aureus</i> |         |
|---------------------------------|---------|
| 1.1                             | 1.1.1   |
| 1.2                             | 1.2.1   |
| 1.3                             | 1.3.1   |
| 1.4                             | 1.4.1   |
| 1.5                             | 1.5.1   |
| 1.6                             | 1.6.1   |
| 1.7                             | 1.7.1   |
| 1.8                             | 1.8.1   |
| 1.9                             | 1.9.1   |
| 1.10                            | 1.10.1  |
| 1.11                            | 1.11.1  |
| 1.12                            | 1.12.1  |
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<210> 234
<211> 50
<212> DNA
<213> Artificial Sequence
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<210> 235
<211> 1964
<212> DNA
<213> Homo sapiens
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 ctggagaaca gatgggttga gtagttgttc ttataaatta gtatctgtgg 1100  
 aacacaatcc tttatatatc aacatcacag tggatttctg gtttggtgca 1150  
 tgaccctgga tcttttgggtg atgtttggaa gaactgattc tttgtttgca 1200  
 ataattttgg cctagagact tcaaatagta gcacacatta agaacctgtt 1250  
 acagctcatt gttgagctga atttttcctt tttgtatttt cttagcagag 1300  
 ctcttggtga tgtagagtat aaaacagttg taacaagaca gctttcttag 1350  
 tcattttgat catgaggggt aaatattgta atatggatac ttgaaggact 1400  
 ttatataaaa ggatgactca aaggataaaa tgaacgctat ttgaggactc 1450  
 tggttgaagg agattttattt aaatttgaag taatatatta tgggataaaa 1500  
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 cgtccaaggt agaaagggtac gaagatacaa tactgttatt catttatcct 1600  
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 cagtgatgcc caccagagaa tacattctct attagttttt aaagagtttt 1850  
 tgtaaaatga ttttgtacaa gtaggatatg aattagcagt ttacaagttt 1900  
 acatattaac taataataaa tatgtctatc aaatacctct gtagtaaaat 1950  
 gtgaaaaagc aaaa 1964

<210> 236

<211> 344

<212> PRT

<213> Homo sapiens

<220>

<221> Signal peptide

<222> 1-27

<223> Signal peptide

<220>

<221> N-glycosylation sites

<222> 4-7, 220-223, 335-338

<223> N-glycosylation sites

<220>

<221> Xylose isomerase proteins

<222> 191-201

<223> Xylose isomerase proteins

<400> 236

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Phe | Asn | Leu | Thr | Phe | His | Leu | Ser | Tyr | Lys | Phe | Arg | Leu |
| 1   |     |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |





Pro Leu Tyr Ile Asn Ile Thr Val Asp Phe Trp Phe Gly Ala  
 335 340

<210> 237  
 <211> 25  
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<220>  
 <223> Synthetic oligonucleotide probe

<400> 237  
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<210> 238  
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 <212> DNA  
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<400> 238  
 gagcttcac tcgttctgcgt tcacc 25

<210> 239  
 <211> 46  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 239  
 caggaatgta aagctttaca gagggctgcc atcctcggtc cccacc 46

<210> 240  
 <211> 2567  
 <212> DNA  
 <213> Homo sapiens

<400> 240  
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 tctcccgtc cgggccccgc aatggcccag gcagtgtggt cgcgcctcgg 150  
 ccgcacctc tggcttgcc gcctcctgcc ctgggccccg gcaggggtgg 200  
 ccgcaggcct gtatgaactc aatctcacca ccgatagccc tgccaccacg 250  
 ggagcgggtg tgaccatctc ggccagcctg gtggccaagg acaacggcag 300  
 cctggccctg cccgctgacg cccacctcta ccgcttcac tggatccaca 350  
 ccccgctggt gcttactggc aagatggaga aggtctcag ctccaccatc 400  
 cgtgtggtcg gccacgtgcc cggggaattc ccggtctctg tctgggtcac 450  
 tgccgctgac tgctggatgt gccagcctgt ggccaggggc tttgtggtcc 500  
 tccccatcac agagttcctc gtgggggacc ttgtgtcac ccagaacact 550



cctggatggg gggcaggact aatactgagt gattgcagag tgctttataa 2200  
 atatcacctt attttatcga aacccatctg tgaaactttc actgaggaaa 2250  
 aggcccttgca gcggtagaag aggttgagtc aaggccgggc gcggtggctc 2300  
 acgcctgtaa tcccagcact ttgggaggcc gaggcgggtg gatcacgaga 2350  
 tcaggagatc gagaccaccc tggctaacac ggtgaaaccc cgtctctact 2400  
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 agctactcgg gaggtctgagg caggagaatg gtgcgaaccc gggaggcgga 2500  
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 gcgagactct gtctcca 2567

<210> 241  
 <211> 423  
 <212> PRT  
 <213> Homo sapiens

<400> 241  
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 Ala Cys Leu Leu Pro Trp Ala Pro Ala Gly Val Ala Ala Gly Leu  
                     20                    25                    30  
 Tyr Glu Leu Asn Leu Thr Thr Asp Ser Pro Ala Thr Thr Gly Ala  
                     35                    40                    45  
 Val Val Thr Ile Ser Ala Ser Leu Val Ala Lys Asp Asn Gly Ser  
                     50                    55                    60  
 Leu Ala Leu Pro Ala Asp Ala His Leu Tyr Arg Phe His Trp Ile  
                     65                    70                    75  
 His Thr Pro Leu Val Leu Thr Gly Lys Met Glu Lys Gly Leu Ser  
                     80                    85                    90  
 Ser Thr Ile Arg Val Val Gly His Val Pro Gly Glu Phe Pro Val  
                     95                    100                    105  
 Ser Val Trp Val Thr Ala Ala Asp Cys Trp Met Cys Gln Pro Val  
                     110                    115                    120  
 Ala Arg Gly Phe Val Val Leu Pro Ile Thr Glu Phe Leu Val Gly  
                     125                    130                    135  
 Asp Leu Val Val Thr Gln Asn Thr Ser Leu Pro Trp Pro Ser Ser  
                     140                    145                    150  
 Tyr Leu Thr Lys Thr Val Leu Lys Val Ser Phe Leu Leu His Asp  
                     155                    160                    165  
 Pro Ser Asn Phe Leu Lys Thr Ala Leu Phe Leu Tyr Ser Trp Asp  
                     170                    175                    180  
 Phe Gly Asp Gly Thr Gln Met Val Thr Glu Asp Ser Val Val Tyr  
                     185                    190                    195

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Tyr | Asn | Tyr | Ser | Ile | Ile | Gly | Thr | Phe | Thr | Val | Lys | Leu | Lys | Val |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Val | Ala | Glu | Trp | Glu | Glu | Val | Glu | Pro | Asp | Ala | Thr | Arg | Ala | Val |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Lys | Gln | Lys | Thr | Gly | Asp | Phe | Ser | Ala | Ser | Leu | Lys | Leu | Gln | Glu |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Thr | Leu | Arg | Gly | Ile | Gln | Val | Leu | Gly | Pro | Thr | Leu | Ile | Gln | Thr |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Phe | Gln | Lys | Met | Thr | Val | Thr | Leu | Asn | Phe | Leu | Gly | Ser | Pro | Pro |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Leu | Thr | Val | Cys | Trp | Arg | Leu | Lys | Pro | Glu | Cys | Leu | Pro | Leu | Glu |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Glu | Gly | Glu | Cys | His | Pro | Val | Ser | Val | Ala | Ser | Thr | Ala | Tyr | Asn |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Leu | Thr | His | Thr | Phe | Arg | Asp | Pro | Gly | Asp | Tyr | Cys | Phe | Ser | Ile |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Arg | Ala | Glu | Asn | Ile | Ile | Ser | Lys | Thr | His | Gln | Tyr | His | Lys | Ile |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |
| Gln | Val | Trp | Pro | Ser | Arg | Ile | Gln | Pro | Ala | Val | Phe | Ala | Phe | Pro |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |
| Cys | Ala | Thr | Leu | Ile | Thr | Val | Met | Leu | Ala | Phe | Ile | Met | Tyr | Met |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Thr | Leu | Arg | Asn | Ala | Thr | Gln | Gln | Lys | Asp | Met | Val | Glu | Asn | Pro |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Glu | Pro | Pro | Ser | Gly | Val | Arg | Cys | Cys | Cys | Gln | Met | Cys | Cys | Gly |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |
| Pro | Phe | Leu | Leu | Glu | Thr | Pro | Ser | Glu | Tyr | Leu | Glu | Ile | Val | Arg |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |
| Glu | Asn | His | Gly | Leu | Leu | Pro | Pro | Leu | Tyr | Lys | Ser | Val | Lys | Thr |  |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |  |

Tyr Thr Val

<210> 242  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 242  
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<210> 243  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 243  
gaaaggccca cagcacatct ggcag 25

<210> 244  
<211> 46  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 244  
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<210> 245  
<211> 485  
<212> DNA  
<213> Homo sapiens

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gctcccagat ctgggcccgt tgctcctgc tcctcctcct cctcgccagc 100  
ctgaccagtg gctctgtttt cccacaacag acgggacaac ttgcagagct 150  
gcaaccccgag gacagagctg gagccagggc cagctggatg cccatgttcc 200  
agaggcgaag gaggcgagac acccacttcc ccatctgcat tttctgctgc 250  
ggctgctgtc atcgatcaaa gtgtgggatg tgctgcaaga cgtagaacct 300  
acctgccctg ccccgctccc ctcccttcct tatttattcc tgctgccccca 350  
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 485

<210> 246  
<211> 84  
<212> PRT  
<213> Homo sapiens

<400> 246  
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20 25 30  
Thr Gly Gln Leu Ala Glu Leu Gln Pro Gln Asp Arg Ala Gly Ala  
35 40 45  
Arg Ala Ser Trp Met Pro Met Phe Gln Arg Arg Arg Arg Arg Asp  
50 55 60  
Thr His Phe Pro Ile Cys Ile Phe Cys Cys Gly Cys Cys His Arg  
65 70 75

Ser Lys Cys Gly Met Cys Cys Lys Thr  
80

<210> 247  
<211> 2359  
<212> DNA  
<213> Homo sapiens

<400> 247  
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agcctgattg tcaacottct gggcatctcc ctgactgtcc tcttcaccct 150  
ccttctcggtt ttcatcatag tgccagccat ttttgagtc tcctttggta 200  
tccgcaaact ctacatgaaa agtctgttaa aaatctttgc gtgggctacc 250  
ttgagaatgg agcgaggagc caaggagaag aaccaccagc ttacaagcc 300  
ctacaccaac ggaatcattg caaaggatcc cacttacta gaagaagaga 350  
tcaaagagat tcgtogaagt ggtagtagta aggctctgga caaactcca 400  
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cattatggat gatgagggtga caaagagatt ctgagcagaa gaactggagt 500  
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gacagccatc atcacctacc atgacagga aaacagacca agaaatggtg 800  
gcactctgtgt ggccaatcat acctcaccga tcgatgtgat catcttgcc 850  
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gagccacagt ttaccctgtt gctatcaagt atgaccctca atttgcgat 1150  
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gatgaccagc tgggccattg tctgcagcgt gtggtacctg cctcccatga 1250  
ctagagaggc agatgaagat gctgtccagt ttgcgaatag ggtgaaatct 1300  
gccattgcc a ggcagggagg acttgtggac ctgctgtggg atgggggcct 1350

gaagagggag aaggtgaagg acacgttcaa ggaggagcag cagaagctgt 1400  
acagcaagat gatcgtgggg aaccacaagg acaggagccg ctcttgagcc 1450  
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tgctgctgct gatgggggta ctaaaggag gggaaggagc cagggtgggc 2050  
gctgactggg ccatggggag aacgtgtgtt cgtactccag gctaaccctg 2100  
aactccccat gtgatgcgcg ctttggtgaa tgtgtgtctc ggtttcccca 2150  
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gttggtgggga ttaaagtgtc gcgggtgagt gaaggacaca tcacgttcag 2250  
tgtttcaagt acaggccccc aaaacggggc acggcaggcc tgagctcaga 2300  
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<210> 248

<211> 456

<212> PRT

<213> Homo sapiens

<400> 248

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| Met | Phe | Leu | Leu | Leu | Pro | Phe | Asp | Ser | Leu | Ile | Val | Asn | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Gly | Ile | Ser | Leu | Thr | Val | Leu | Phe | Thr | Leu | Leu | Leu | Val | Phe | Ile |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ile | Val | Pro | Ala | Ile | Phe | Gly | Val | Ser | Phe | Gly | Ile | Arg | Lys | Leu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Tyr | Met | Lys | Ser | Leu | Leu | Lys | Ile | Phe | Ala | Trp | Ala | Thr | Leu | Arg |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Met | Glu | Arg | Gly | Ala | Lys | Glu | Lys | Asn | His | Gln | Leu | Tyr | Lys | Pro |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Tyr | Thr | Asn | Gly | Ile | Ile | Ala | Lys | Asp | Pro | Thr | Ser | Leu | Glu | Glu |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Glu | Ile | Lys | Glu | Ile | Arg | Arg | Ser | Gly | Ser | Ser | Lys | Ala | Leu | Asp |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Asn | Thr | Pro | Glu | Phe | Glu | Leu | Ser | Asp | Ile | Phe | Tyr | Phe | Cys | Arg |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Lys | Gly | Met | Glu | Thr | Ile | Met | Asp | Asp | Glu | Val | Thr | Lys | Arg | Phe |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Ser | Ala | Glu | Glu | Leu | Glu | Ser | Trp | Asn | Leu | Leu | Ser | Arg | Thr | Asn |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Tyr | Asn | Phe | Gln | Tyr | Ile | Ser | Leu | Arg | Leu | Thr | Val | Leu | Trp | Gly |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Leu | Gly | Val | Leu | Ile | Arg | Tyr | Cys | Phe | Leu | Leu | Pro | Leu | Arg | Ile |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Ala | Leu | Ala | Phe | Thr | Gly | Ile | Ser | Leu | Leu | Val | Val | Gly | Thr | Thr |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Val | Val | Gly | Tyr | Leu | Pro | Asn | Gly | Arg | Phe | Lys | Glu | Phe | Met | Ser |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Lys | His | Val | His | Leu | Met | Cys | Tyr | Arg | Ile | Cys | Val | Arg | Ala | Leu |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Thr | Ala | Ile | Ile | Thr | Tyr | His | Asp | Arg | Glu | Asn | Arg | Pro | Arg | Asn |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Gly | Gly | Ile | Cys | Val | Ala | Asn | His | Thr | Ser | Pro | Ile | Asp | Val | Ile |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Ile | Leu | Ala | Ser | Asp | Gly | Tyr | Tyr | Ala | Met | Val | Gly | Gln | Val | His |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Gly | Gly | Leu | Met | Gly | Val | Ile | Gln | Arg | Ala | Met | Val | Lys | Ala | Cys |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Pro | His | Val | Trp | Phe | Glu | Arg | Ser | Glu | Val | Lys | Asp | Arg | His | Leu |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Val | Ala | Lys | Arg | Leu | Thr | Glu | His | Val | Gln | Asp | Lys | Ser | Lys | Leu |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Pro | Ile | Leu | Ile | Phe | Pro | Glu | Gly | Thr | Cys | Ile | Asn | Asn | Thr | Ser |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |
| Val | Met | Met | Phe | Lys | Lys | Gly | Ser | Phe | Glu | Ile | Gly | Ala | Thr | Val |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |
| Tyr | Pro | Val | Ala | Ile | Lys | Tyr | Asp | Pro | Gln | Phe | Gly | Asp | Ala | Phe |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Trp | Asn | Ser | Ser | Lys | Tyr | Gly | Met | Val | Thr | Tyr | Leu | Leu | Arg | Met |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Met | Thr | Ser | Trp | Ala | Ile | Val | Cys | Ser | Val | Trp | Tyr | Leu | Pro | Pro |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Arg | Glu | Ala | Asp | Glu | Asp | Ala | Val | Gln | Phe | Ala | Asn | Arg |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Val | Lys | Ser | Ala | Ile | Ala | Arg | Gln | Gly | Gly | Leu | Val | Asp | Leu | Leu |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Trp | Asp | Gly | Gly | Leu | Lys | Arg | Glu | Lys | Val | Lys | Asp | Thr | Phe | Lys |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Glu | Glu | Gln | Gln | Lys | Leu | Tyr | Ser | Lys | Met | Ile | Val | Gly | Asn | His |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Lys | Asp | Arg | Ser | Arg | Ser |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 455 |     |     |     |     |     |     |     |     |     |     |

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 <211> 1103  
 <212> DNA  
 <213> Homo sapiens

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 gccctcggca gcctcggcct ccacacctgg caggcccagg ctgttccac 150  
 catcctgccc ctgggcctgg ctccagacac ctttgacgat acctatgtgg 200  
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gacatggagt tttattgagg tagctacgtg attaaatggt attgcagtgt 1100

gga 1103

<210> 250

<211> 240

<212> PRT

<213> Homo sapiens

<400> 250

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Leu | Ala | Ala | Leu | Met | Ile | Ala | Leu | Gly | Ser | Leu | Gly | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Thr | Trp | Gln | Ala | Gln | Ala | Val | Pro | Thr | Ile | Leu | Pro | Leu | Gly |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ala | Pro | Asp | Thr | Phe | Asp | Asp | Thr | Tyr | Val | Gly | Cys | Ala | Glu |
|     |     |     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Met | Glu | Glu | Lys | Ala | Ala | Pro | Leu | Leu | Lys | Glu | Glu | Met | Ala |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | His | Ala | Leu | Leu | Arg | Glu | Ser | Trp | Glu | Ala | Ala | Gln | Glu | Thr |
|     |     |     | 65  |     |     |     |     |     | 70  |     |     |     |     | 75  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Trp | Glu | Asp | Lys | Arg | Arg | Gly | Leu | Thr | Leu | Pro | Pro | Gly | Phe | Lys |
|     |     |     | 80  |     |     |     |     |     | 85  |     |     |     |     | 90  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Gln | Asn | Gly | Ile | Ala | Ile | Met | Val | Tyr | Thr | Asn | Ser | Ser | Asn |
|     |     |     | 95  |     |     |     |     |     | 100 |     |     |     |     | 105 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Tyr | Trp | Glu | Leu | Asn | Gln | Ala | Val | Arg | Thr | Gly | Gly | Gly |
|     |     |     | 110 |     |     |     |     |     | 115 |     |     |     |     | 120 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Arg | Glu | Leu | Tyr | Met | Arg | His | Phe | Pro | Phe | Lys | Ala | Leu | His |
|     |     |     | 125 |     |     |     |     |     | 130 |     |     |     |     | 135 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Tyr | Leu | Ile | Arg | Ala | Leu | Gln | Leu | Leu | Arg | Gly | Ser | Gly | Gly |
|     |     |     | 140 |     |     |     |     |     | 145 |     |     |     |     | 150 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Ser | Arg | Gly | Pro | Gly | Glu | Val | Val | Phe | Arg | Gly | Val | Gly | Ser |
|     |     |     | 155 |     |     |     |     |     | 160 |     |     |     |     | 165 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Arg | Phe | Glu | Pro | Lys | Arg | Leu | Gly | Asp | Ser | Val | Arg | Leu | Gly |
|     |     |     | 170 |     |     |     |     |     | 175 |     |     |     |     | 180 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Phe | Ala | Ser | Ser | Ser | Leu | Asp | Lys | Ala | Val | Ala | His | Arg | Phe |
|     |     |     | 185 |     |     |     |     |     | 190 |     |     |     |     | 195 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Glu | Lys | Arg | Arg | Gly | Cys | Val | Ser | Ala | Pro | Gly | Val | Gln | Leu |
|     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |     | 210 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ser | Gln | Ser | Glu | Gly | Ala | Ser | Ser | Leu | Pro | Pro | Trp | Lys | Thr |
|     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |     | 225 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Leu | Leu | Ala | Pro | Gly | Glu | Phe | Gln | Leu | Ser | Gly | Val | Gly | Pro |
|     |     |     | 230 |     |     |     |     |     | 235 |     |     |     |     | 240 |

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<211> 50

<212> DNA

<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

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<210> 252  
<211> 1076  
<212> DNA  
<213> Homo sapiens

<400> 252  
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gcctctggac cegtgaaga gctggtcggt tccgttggtg gggccgtgac 150  
tttccccctg aagtccaaag taaagcaagt tgactctatt gtctggacct 200  
tcaacacaac ccctcttgtc accatacagc cagaaggggg cactatcata 250  
gtgacccaaa atcgtaatag ggagagagta gacttcccag atggaggcta 300  
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tggggatata cagctcatca ctccagcagc cctccacca ggagtacgtg 400  
ctgcatgtct acgagcacct gtcaaagcct aaagtcacca tgggtctgca 450  
gagcaataag aatggcacct gtgtgaccaa tctgacatgc tgcattgaac 500  
atggggaaga ggatgtgatt tatacctgga aggcctggg gcaagcagcc 550  
aatgagtccc ataatgggtc catcctcccc atctcctgga gatggggaga 600  
aagtgatatg accttcatct gcgttgccag gaaccctgtc agcagaaact 650  
tctcaagccc catccttgcc aggaagctct gtgaagggtc tgctgatgac 700  
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cagtctcttt gtactggggc tatttctttg gtttctgaag agagagagac 800  
aagaagagta cattgaagag aagaagagag tggacatttg tcgggaaact 850  
cctaacatat gccccattc tggagagaac acagagtacg acacaatccc 900  
tcacactaat agaacaatcc taaaggaaga tccagcaaact acggtttact 950  
ccactgtgga aataccgaaa aagatggaaa atccccactc actgctcacg 1000  
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agtgcactcc cctaagtctc tgctca 1076

<210> 253  
<211> 335  
<212> PRT  
<213> Homo sapiens

<400> 253  
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| 1                   | 5               | 10                      | 15          |
|---------------------|-----------------|-------------------------|-------------|
| Gln Leu Thr Gly Ser | Ala Ala Ser Gly | Pro Val Lys Glu Leu Val | 20 25 30    |
| Gly Ser Val Gly Gly | Ala Val Thr Phe | Pro Leu Lys Ser Lys Val | 35 40 45    |
| Lys Gln Val Asp Ser | Ile Val Trp Thr | Phe Asn Thr Thr Pro Leu | 50 55 60    |
| Val Thr Ile Gln Pro | Glu Gly Gly Thr | Ile Ile Val Thr Gln Asn | 65 70 75    |
| Arg Asn Arg Glu Arg | Val Asp Phe Pro | Asp Gly Gly Tyr Ser Leu | 80 85 90    |
| Lys Leu Ser Lys Leu | Lys Lys Asn Asp | Ser Gly Ile Tyr Tyr Val | 95 100 105  |
| Gly Ile Tyr Ser Ser | Ser Leu Gln Gln | Pro Ser Thr Gln Glu Tyr | 110 115 120 |
| Val Leu His Val Tyr | Glu His Leu Ser | Lys Pro Lys Val Thr Met | 125 130 135 |
| Gly Leu Gln Ser Asn | Lys Asn Gly Thr | Cys Val Thr Asn Leu Thr | 140 145 150 |
| Cys Cys Met Glu His | Gly Glu Glu Asp | Val Ile Tyr Thr Trp Lys | 155 160 165 |
| Ala Leu Gly Gln Ala | Ala Asn Glu Ser | His Asn Gly Ser Ile Leu | 170 175 180 |
| Pro Ile Ser Trp Arg | Trp Gly Glu Ser | Asp Met Thr Phe Ile Cys | 185 190 195 |
| Val Ala Arg Asn Pro | Val Ser Arg Asn | Phe Ser Ser Pro Ile Leu | 200 205 210 |
| Ala Arg Lys Leu Cys | Glu Gly Ala Ala | Asp Asp Pro Asp Ser Ser | 215 220 225 |
| Met Val Leu Leu Cys | Leu Leu Leu Val | Pro Leu Leu Leu Ser Leu | 230 235 240 |
| Phe Val Leu Gly Leu | Phe Leu Trp Phe | Leu Lys Arg Glu Arg Gln | 245 250 255 |
| Glu Glu Tyr Ile Glu | Glu Lys Lys Arg | Val Asp Ile Cys Arg Glu | 260 265 270 |
| Thr Pro Asn Ile Cys | Pro His Ser Gly | Glu Asn Thr Glu Tyr Asp | 275 280 285 |
| Thr Ile Pro His Thr | Asn Arg Thr Ile | Leu Lys Glu Asp Pro Ala | 290 295 300 |
| Asn Thr Val Tyr Ser | Thr Val Glu Ile | Pro Lys Lys Met Glu Asn | 305 310 315 |
| Pro His Ser Leu Leu | Thr Met Pro Asp | Thr Pro Arg Leu Phe Ala |             |

320

325

330

Tyr Glu Asn Val Ile  
335

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<211> 1053  
<212> DNA  
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ggccgtgact ttccccctga agtccaaagt aaagcaagtt gactctattg 150  
tctggacctt caacacaacc cctcttgta ccatacagcc agaagggggc 200  
actatcatag tgaccocaaa tcgtaatagg gagagagtag acttcccaga 250  
tggaggctac tccctgaagc tcagcaaact gaagaagaat gactcaggga 300  
tctactatgt ggggatatac agctcatcac tccagcagcc ctccaccag 350  
gagtacgtgc tgcatgtcta cgagcacctg tcaaagccta aagtcaccat 400  
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gcatggaaca tggggaagag gatgtgattt atacctggaa ggccctgggg 500  
caagcagcca atgagtccca taatgggtcc atcctcccca tctcctggag 550  
atggggagaa agtgatatga ccttcatctg cgttgccagg aaccctgtca 600  
gcagaaactt ctcaagcccc atccttgcca ggaagctctg tgaagggtgct 650  
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cctcctgctc agtctctttg tactggggct atttctttgg tttctgaaga 750  
gagagagaca agaagagtag attgaagaga agaagagagt ggacatttgt 800  
cgggaaaactc ctaacatatg cccccattct ggagagaaca cagagtacga 850  
cacaatccct cacactaata gaacaatcct aaaggaagat ccagcaaata 900  
cggtttactc cactgtggaa ataccgaaaa agatggaaaa tccccactca 950  
ctgctcacga tgccagacac accaaggcta tttgcctatg agaatgttat 1000  
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aaa 1053

<210> 255  
<211> 860  
<212> DNA  
<213> Homo sapiens

<400> 255  
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gatgctgctg ctgctgtggt tgggactgac cctagtctgt gtccatgcag 100  
aagaagctag ttctacggga aggaacttta atgtagaaaa gattaatggg 150  
gaatggcata ctattatcct ggcctctgac aaaagagaaa agatagaaga 200  
acatggcaac tttagacttt ttctggagca aatccatgtc ttggagaatt 250  
ccttagttct taaagtccat actgtaagag atgaagagtg ctccgaatta 300  
tctatgggtg ctgacaaaac agaaaaggct ggtgaatatt ctgtgacgta 350  
tgatggattc aatacattta ctatacctaa gacagactat gataactttc 400  
ttatggctca cctcattaac gaaaaggatg gggaaacctt ccagctgatg 450  
gggctctatg gccgagaacc agatttgagt tcagacatca aggaaagggt 500  
tgcacaacta tgtgaggagc atggaatcct tagagaaaat atcattgacc 550  
tatccaatgc caatcgctgc ctccaggccc gagaatgaag aatggcctga 600  
gcctccagtg ttgagtggac acttctcacc aggactccac catcatccct 650  
tcctatccat acagcatccc cagtataaat tctgtgatct gcattccatc 700  
ctgtctcact gagaagtcca attccagtct atcaacatgt tacctaggat 750  
acctcatcaa gaatcaaaga cttctttaaa tttctctttg atacaccctt 800  
gacaattttt catgaaatta ttctcttcc tgttcaataa atgattaccc 850  
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<210> 256

<211> 180

<212> PRT

<213> Homo sapiens

<400> 256

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Lys | Met | Leu | Leu | Leu | Leu | Cys | Leu | Gly | Leu | Thr | Leu | Val | Cys | 1   | 5   | 10  | 15 |
| Val | His | Ala | Glu | Glu | Ala | Ser | Ser | Thr | Gly | Arg | Asn | Phe | Asn | Val | 20  | 25  | 30  |    |
| Glu | Lys | Ile | Asn | Gly | Glu | Trp | His | Thr | Ile | Ile | Leu | Ala | Ser | Asp | 35  | 40  | 45  |    |
| Lys | Arg | Glu | Lys | Ile | Glu | Glu | His | Gly | Asn | Phe | Arg | Leu | Phe | Leu | 50  | 55  | 60  |    |
| Glu | Gln | Ile | His | Val | Leu | Glu | Asn | Ser | Leu | Val | Leu | Lys | Val | His | 65  | 70  | 75  |    |
| Thr | Val | Arg | Asp | Glu | Glu | Cys | Ser | Glu | Leu | Ser | Met | Val | Ala | Asp | 80  | 85  | 90  |    |
| Lys | Thr | Glu | Lys | Ala | Gly | Glu | Tyr | Ser | Val | Thr | Tyr | Asp | Gly | Phe | 95  | 100 | 105 |    |
| Asn | Thr | Phe | Thr | Ile | Pro | Lys | Thr | Asp | Tyr | Asp | Asn | Phe | Leu | Met | 110 | 115 | 120 |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | His | Leu | Ile | Asn | Glu | Lys | Asp | Gly | Glu | Thr | Phe | Gln | Leu | Met |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Gly | Leu | Tyr | Gly | Arg | Glu | Pro | Asp | Leu | Ser | Ser | Asp | Ile | Lys | Glu |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Arg | Phe | Ala | Gln | Leu | Cys | Glu | Glu | His | Gly | Ile | Leu | Arg | Glu | Asn |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ile | Ile | Asp | Leu | Ser | Asn | Ala | Asn | Arg | Cys | Leu | Gln | Ala | Arg | Glu |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |

<210> 257  
 <211> 766  
 <212> DNA  
 <213> Homo sapiens

<400> 257  
 ggctcgagcg tttctgagcc aggggtgacc atgacctgct gcgaaggatg 50  
 gacatcctgc aatggattca gcctgctggt tctactgctg ttaggagtag 100  
 ttctcaatgc gatacctcta attgtcagct tagttgagga agaccaatth 150  
 tctcaaaaacc ccatctcttg ctttgagtgg tggttcccag gaattatagg 200  
 agcaggtctg atggccattc cagcaacaac aatgtccttg acagcaagaa 250  
 aaagagcgtg ctgcaacaac agaactggaa tgtttctttc atcatttttc 300  
 agtgtgatca cagtcattgg tgctctgtat tgcattgctga tatccatcca 350  
 ggctctctta aaaggtcttc tcatgtgtaa ttctccaagc aacagtaatg 400  
 ccaattgtga attttcattg aaaaacatca gtgacattca tccagaatcc 450  
 ttcaacttgc agtgggtttt caatgactct tgtgcacctc ctactgggtt 500  
 caataaacc accagtaacg acaccatggc gagtggctgg agagcatcta 550  
 gtttccactt cgattctgaa gaaaacaaac ataggcttat ccacttctca 600  
 gtatttttag gtctattgct tggttgaatt ctggaggtcc tgtttgggct 650  
 cagtcagata gtcacgggtt tccttggctg tctgtgtgga gtctctaagc 700  
 gaagaagtca aattgtgtag tttaatggga ataaaatgta agtatcagta 750  
 gtttgaaaaa aaaaaa 766

<210> 258  
 <211> 229  
 <212> PRT  
 <213> Homo sapiens

<400> 258  
 Met Thr Cys Cys Glu Gly Trp Thr Ser Cys Asn Gly Phe Ser Leu  
 1 5 10 15  
 Leu Val Leu Leu Leu Leu Gly Val Val Leu Asn Ala Ile Pro Leu  
 20 25 30  
 Ile Val Ser Leu Val Glu Glu Asp Gln Phe Ser Gln Asn Pro Ile





tcaacacgtt gctttaataa atcacttgcc ctgc 434

<210> 260  
<211> 83  
<212> PRT  
<213> Homo sapiens

<400> 260  
Met Arg Leu Ser Val Cys Leu Leu Met Val Ser Leu Ala Leu Cys  
1 5 10 15  
Cys Tyr Gln Ala His Ala Leu Val Cys Pro Ala Val Ala Ser Glu  
20 25 30  
Ile Thr Val Phe Leu Phe Leu Ser Asp Ala Ala Val Asn Leu Gln  
35 40 45  
Val Ala Lys Leu Asn Pro Pro Pro Glu Ala Leu Ala Ala Lys Leu  
50 55 60  
Glu Val Lys His Cys Thr Asp Gln Ile Ser Phe Lys Lys Arg Leu  
65 70 75  
Ser Leu Lys Lys Ser Trp Trp Lys  
80

<210> 261  
<211> 636  
<212> DNA  
<213> Homo sapiens

<400> 261  
atccgttctc tgcgctgccca gctcaggtga gccctcgcca aggtgacctc 50  
gcaggacact ggtgaaggag cagtgaggaa cctgcagagt cacacagttg 100  
ctgaccaatt gagctgtgag cctggagcag atccgtgggc tgcagacccc 150  
cgccccagtg cctctcccc tgcagccctg cccctcgaac tgtgacatgg 200  
agagagtgac cctggccctt ctctactgg caggcctgac tgccttgga 250  
gccaatgacc catttgccaa taaagacgat cccttctact atgactggaa 300  
aaacctgcag ctgagcggac tgatctgcgg agggctcctg gccattgctg 350  
ggatcgcggc agttctgagt ggcaaagca aatacaagag cagccagaag 400  
cagcacagtc ctgtacctga gaaggccatc ccaactcatca ctccaggctc 450  
tgccactact tgctgagcac aggactggcc tccagggatg gcctgaagcc 500  
taacactggc cccagcacc tcctcccctg ggaggcctta tcctcaagga 550  
aggacttctc tccaagggca ggctgttagg cccctttctg atcaggaggc 600  
ttctttatga attaaactcg cccaccacc ccctca 636

<210> 262  
<211> 89  
<212> PRT  
<213> Homo sapiens

<400> 262

Met Glu Arg Val Thr Leu Ala Leu Leu Leu Leu Ala Gly Leu Thr  
1 5 10 15

Ala Leu Glu Ala Asn Asp Pro Phe Ala Asn Lys Asp Asp Pro Phe  
20 25 30

Tyr Tyr Asp Trp Lys Asn Leu Gln Leu Ser Gly Leu Ile Cys Gly  
35 40 45

Gly Leu Leu Ala Ile Ala Gly Ile Ala Ala Val Leu Ser Gly Lys  
50 55 60

Cys Lys Tyr Lys Ser Ser Gln Lys Gln His Ser Pro Val Pro Glu  
65 70 75

Lys Ala Ile Pro Leu Ile Thr Pro Gly Ser Ala Thr Thr Cys  
80 85

<210> 263

<211> 1676

<212> DNA

<213> Homo sapiens

<400> 263

ggagaagagg ttgtgtggga caagctgctc cgcacagaag gatgtcgctg 50  
ctgagcctgc cctggctggg cctcagaccg gtggcaatgt ccccatggct 100  
actcctgctg ctggttgtgg gctcctggct actcgcccgc atcctggctt 150  
ggacctatgc cttctataac aactgccgcc ggctccagtg tttcccacag 200  
ccccaaaac ggaactgggt ttggggtcac ctgggcctga tctctctac 250  
agaggagggc ttgaaggact cgaccagat gtcggccacc tattcccagg 300  
gctttacggt atggctgggt cccatcatcc ccttcacgtt tttatgccac 350  
cctgacacca tccggtctat caccaatgcc tcagctgcca ttgcaccaa 400  
ggataatctc ttcacaggt tctgaagcc ctggctggga gaaggatac 450  
tgctgagtgg cggtgacaag tggagccgcc accgtcggat gctgacgcc 500  
gccttcatt tcaacatcct gaagtcctat ataacgatct tcaacaagag 550  
tgcaaacatc atgcttgaca agtggcagca cctggcctca gagggcagca 600  
gtcgtctgga catgtttgag cacatcagcc tcatgacctt ggacagtcta 650  
cagaaatgca tcttcagctt tgacagccat tgtcaggaga ggcccagtga 700  
atatattgcc accatcttgg agctcagtc ccttgtagag aaaagaagcc 750  
agcatatcct ccagcacatg gactttctgt attacctctc ccatgacggg 800  
cggcgcttcc acagggcctg ccgcctgggt catgacttca cagacgctgt 850  
catccgggag cggcgtcgca cctcccccac tcagggtatt gatgattttt 900  
tcaaagacaa agccaagtcc aagactttgg atttcattga tgtgcttctg 950



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Leu | Leu | Ser | Gly | Gly | Asp | Lys | Trp | Ser | Arg | His | Arg | Arg | Met | 140 | 145 | 150 |
| Leu | Thr | Pro | Ala | Phe | His | Phe | Asn | Ile | Leu | Lys | Ser | Tyr | Ile | Thr | 155 | 160 | 165 |
| Ile | Phe | Asn | Lys | Ser | Ala | Asn | Ile | Met | Leu | Asp | Lys | Trp | Gln | His | 170 | 175 | 180 |
| Leu | Ala | Ser | Glu | Gly | Ser | Ser | Arg | Leu | Asp | Met | Phe | Glu | His | Ile | 185 | 190 | 195 |
| Ser | Leu | Met | Thr | Leu | Asp | Ser | Leu | Gln | Lys | Cys | Ile | Phe | Ser | Phe | 200 | 205 | 210 |
| Asp | Ser | His | Cys | Gln | Glu | Arg | Pro | Ser | Glu | Tyr | Ile | Ala | Thr | Ile | 215 | 220 | 225 |
| Leu | Glu | Leu | Ser | Ala | Leu | Val | Glu | Lys | Arg | Ser | Gln | His | Ile | Leu | 230 | 235 | 240 |
| Gln | His | Met | Asp | Phe | Leu | Tyr | Tyr | Leu | Ser | His | Asp | Gly | Arg | Arg | 245 | 250 | 255 |
| Phe | His | Arg | Ala | Cys | Arg | Leu | Val | His | Asp | Phe | Thr | Asp | Ala | Val | 260 | 265 | 270 |
| Ile | Arg | Glu | Arg | Arg | Arg | Thr | Leu | Pro | Thr | Gln | Gly | Ile | Asp | Asp | 275 | 280 | 285 |
| Phe | Phe | Lys | Asp | Lys | Ala | Lys | Ser | Lys | Thr | Leu | Asp | Phe | Ile | Asp | 290 | 295 | 300 |
| Val | Leu | Leu | Leu | Ser | Lys | Asp | Glu | Asp | Gly | Lys | Ala | Leu | Ser | Asp | 305 | 310 | 315 |
| Glu | Asp | Ile | Arg | Ala | Glu | Ala | Asp | Thr | Phe | Met | Phe | Gly | Gly | His | 320 | 325 | 330 |
| Asp | Thr | Thr | Ala | Ser | Gly | Leu | Ser | Trp | Val | Leu | Tyr | Asn | Leu | Ala | 335 | 340 | 345 |
| Arg | His | Pro | Glu | Tyr | Gln | Glu | Arg | Cys | Arg | Gln | Glu | Val | Gln | Glu | 350 | 355 | 360 |
| Leu | Leu | Lys | Asp | Arg | Asp | Pro | Lys | Glu | Ile | Glu | Trp | Asp | Asp | Leu | 365 | 370 | 375 |
| Ala | Gln | Leu | Pro | Phe | Leu | Thr | Met | Cys | Val | Lys | Glu | Ser | Leu | Arg | 380 | 385 | 390 |
| Leu | His | Pro | Pro | Ala | Pro | Phe | Ile | Ser | Arg | Cys | Cys | Thr | Gln | Asp | 395 | 400 | 405 |
| Ile | Val | Leu | Pro | Asp | Gly | Arg | Val | Ile | Pro | Lys | Gly | Ile | Thr | Cys | 410 | 415 | 420 |
| Leu | Ile | Asp | Ile | Ile | Gly | Val | His | His | Asn | Pro | Thr | Val | Trp | Pro | 425 | 430 | 435 |
| Asp | Pro | Glu | Val | Tyr | Asp | Pro | Phe | Arg | Phe | Asp | Pro | Glu | Asn | Ser | 440 | 445 | 450 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Gly | Arg | Ser | Pro | Leu | Ala | Phe | Ile | Pro | Phe | Ser | Ala | Gly | Pro |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Arg | Asn | Cys | Ile | Gly | Gln | Ala | Phe | Ala | Met | Ala | Glu | Met | Lys | Val |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Val | Leu | Ala | Leu | Met | Leu | Leu | His | Phe | Arg | Phe | Leu | Pro | Asp | His |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |
| Thr | Glu | Pro | Arg | Arg | Lys | Leu | Glu | Leu | Ile | Met | Arg | Ala | Glu | Gly |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |
| Gly | Leu | Trp | Leu | Arg | Val | Glu | Pro | Leu | Asn | Val | Gly | Leu | Gln |     |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     |     |

<210> 265  
 <211> 584  
 <212> DNA  
 <213> Homo sapiens

<400> 265  
 caacagaagc caagaaggaa gccgtctatc ttgtggcgat catgtataag 50  
 ctggcctcct gctgtttgct ttccacagga ttcttaaata ctctcttata 100  
 tcttcctctc cttgactcca gggaaatata ctttcaactc tcagcacctc 150  
 atgaagacgc gcgcttaact ccggaggagc tagaaagagc ttcccttcta 200  
 cagatattgc cagagatgct ggggtgcagaa agaggggata ttctcaggaa 250  
 agcagactca agtaccaca tttttaaccc aagaggaaat ttgagaaagt 300  
 ttcaggattt ctctggacaa gatcctaaca ttttactgag tcatcttttg 350  
 gccagaatct ggaaaccata caagaaacgt gagactcctg attgcttctg 400  
 gaaataactgt gtctgaagtg aaataagcat ctgttagtca gctcagaaac 450  
 acccatctta gaatatgaaa aataacacaa tgcttgattt gaaaacagtg 500  
 tggagaaaaa ctaggcaaac tacacctgtg tcattgttac ctggaaaata 550  
 aatcctctat gttttgcaca aaaaaaaaaa aaaa 584

<210> 266  
 <211> 124  
 <212> PRT  
 <213> Homo sapiens

<400> 266  
 Met Tyr Lys Leu Ala Ser Cys Cys Leu Leu Phe Thr Gly Phe Leu  
 1 5 10 15  
 Asn Pro Leu Leu Ser Leu Pro Leu Leu Asp Ser Arg Glu Ile Ser  
 20 25 30  
 Phe Gln Leu Ser Ala Pro His Glu Asp Ala Arg Leu Thr Pro Glu  
 35 40 45  
 Glu Leu Glu Arg Ala Ser Leu Leu Gln Ile Leu Pro Glu Met Leu  
 50 55 60

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ala | Glu | Arg | Gly | Asp | Ile | Leu | Arg | Lys | Ala | Asp | Ser | Ser | Thr |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Asn | Ile | Phe | Asn | Pro | Arg | Gly | Asn | Leu | Arg | Lys | Phe | Gln | Asp | Phe |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ser | Gly | Gln | Asp | Pro | Asn | Ile | Leu | Leu | Ser | His | Leu | Leu | Ala | Arg |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Ile | Trp | Lys | Pro | Tyr | Lys | Lys | Arg | Glu | Thr | Pro | Asp | Cys | Phe | Trp |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |

Lys Tyr Cys Val

<210> 267  
 <211> 654  
 <212> DNA  
 <213> Homo sapiens

<400> 267  
 gaacattttt agttoccaaag gaatgtacat cagccccacg gaagctaggc 50  
 cacctctggg atgggggttgc tggtttaaaa caaacgccag tcatcctata 100  
 taaggacctg acagccacca ggcaccacct ccgccaggaa ctgcaggccc 150  
 acctgtctgc aaccagctg aggccatgcc ctccccaggg accgtctgca 200  
 gcctcctgct cctcggcatg ctctggctgg acttggccat ggcaggctcc 250  
 agcttcctga gccctgaaca ccagagagtc cagcagagaa aggagtcgaa 300  
 gaagccacca gccaagctgc agccccgagc tctagcaggc tggctccgcc 350  
 cggaagatgg aggtcaagca gaaggggcag aggatgaact ggaagtccgg 400  
 ttcaacgccc cttttgatgt tggaatcaag ctgtcagggg ttcagtacca 450  
 gcagcacagc caggccctgg ggaagtttct tcaggacatc ctctgggaag 500  
 aggccaaaga ggccccagcc gacaagtgat cgccacaag cttactcac 550  
 ctctctctaa gtttagaagc gctcatctgg cttttcgctt gcttctgcag 600  
 caactcccac gactgttgta caagctcagg aggccaataa atgttcaaac 650  
 tgta 654

<210> 268  
 <211> 117  
 <212> PRT  
 <213> Homo sapiens

<400> 268  
 Met Pro Ser Pro Gly Thr Val Cys Ser Leu Leu Leu Leu Gly Met  
 1 5 10 15  
 Leu Trp Leu Asp Leu Ala Met Ala Gly Ser Ser Phe Leu Ser Pro  
 20 25 30  
 Glu His Gln Arg Val Gln Gln Arg Lys Glu Ser Lys Lys Pro Pro  
 35 40 45





cagagcatcc cctgcctgca gttgtggcaa gaacgcccag ctcagaatga 1100  
 acacacccca ccaagagcct ccttgttcat aaccacaggt taccctacaa 1150  
 accactgtcc ccacacaacc ctggggatgt tttaaaacac acacctctaa 1200  
 cgcatatctt acagtcactg ttgtcttgcc tgagggttga atttttttta 1250  
 atgaaagtgc aatgaaaatc actggattaa atcctacgga cacagagctg 1300  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa 1332

<210> 270  
 <211> 142  
 <212> PRT  
 <213> Homo sapiens

<400> 270  
 Met Asn Thr Trp Leu Leu Phe Leu Pro Leu Phe Pro Val Gln Val  
 1 5 10 15  
 Gln Thr Leu Ile Val Val Ile Ile Gly Met Leu Val Leu Leu Leu  
 20 25 30  
 Asp Phe Leu Gly Leu Val His Leu Gly Gln Leu Leu Ile Phe His  
 35 40 45  
 Ile Tyr Leu Ser Met Ser Pro Thr Leu Ser Pro Arg Ser Pro Gln  
 50 55 60  
 Gly Trp Val Val Arg Ala Ala His Leu Thr Pro Leu Leu Glu Tyr  
 65 70 75  
 Val Pro Asn Pro Glu Pro Pro Thr Pro Gly Ala Arg Val Phe Val  
 80 85 90  
 Pro Arg Val Arg Met Cys Ser Gly Ser Ala Ser Pro Arg Ser Glu  
 95 100 105  
 Ile Met Asp Lys Lys Gly Lys Ser Gln Glu Glu Ile Lys Ser Met  
 110 115 120  
 Arg Thr Gln Gln Ala Gln Gln Glu Ala Glu Leu Thr Pro Arg Pro  
 125 130 135  
 Ala Gly Val Val Pro Gly Ala  
 140

<210> 271  
 <211> 1484  
 <212> DNA  
 <213> Homo sapiens

<400> 271  
 ggagtgcaga tggcatcctt cggttcttcc agacaagctg caagacgctg 50  
 accatggcca agatggagct ctcgaaggcc ttctctggcc agcggacact 100  
 cctatctgcc atcctcagca tgctatcact cagcttctcc acaacatccc 150  
 tgctcagcaa ctactggttt gtgggcacac agaaggtgcc caagcccctg 200  
 tgcgagaaag gtctggcagc caagtgtttt gacatgccag tgtccctgga 250



| 35  |     |     |     |     |     |     |     |     |     | 40  |     |     |     |     | 45 |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|--|--|--|--|
| Pro | Lys | Pro | Leu | Cys | Glu | Lys | Gly | Leu | Ala | Ala | Lys | Cys | Phe | Asp |    |  |  |  |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |    |  |  |  |  |
| Met | Pro | Val | Ser | Leu | Asp | Gly | Asp | Thr | Asn | Thr | Ser | Thr | Gln | Glu |    |  |  |  |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |    |  |  |  |  |
| Val | Val | Gln | Tyr | Asn | Trp | Glu | Thr | Gly | Asp | Asp | Arg | Phe | Ser | Phe |    |  |  |  |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |    |  |  |  |  |
| Arg | Ser | Phe | Arg | Ser | Gly | Met | Trp | Leu | Ser | Cys | Glu | Glu | Thr | Val |    |  |  |  |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |    |  |  |  |  |
| Glu | Glu | Pro | Gly | Glu | Arg | Cys | Arg | Ser | Phe | Ile | Glu | Leu | Thr | Pro |    |  |  |  |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |    |  |  |  |  |
| Pro | Ala | Lys | Arg | Gly | Glu | Lys | Gly | Leu | Leu | Glu | Phe | Ala | Thr | Leu |    |  |  |  |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |    |  |  |  |  |
| Gln | Gly | Pro | Cys | His | Pro | Thr | Leu | Arg | Phe | Gly | Gly | Lys | Arg | Leu |    |  |  |  |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |    |  |  |  |  |
| Met | Glu | Lys | Ala | Ser | Leu | Pro | Ser | Pro | Pro | Leu | Gly | Leu | Cys | Gly |    |  |  |  |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |    |  |  |  |  |
| Lys | Asn | Pro | Met | Val | Ile | Pro | Gly | Asn | Ala | Asp | His | Leu | His | Arg |    |  |  |  |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |    |  |  |  |  |
| Thr | Ser | Ile | His | Gln | Leu | Pro | Pro | Ala | Thr | Asn | Arg | Leu | Ala | Thr |    |  |  |  |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |    |  |  |  |  |
| His | Trp | Glu | Pro | Cys | Leu | Trp | Ala | Gln | Thr | Glu | Arg | Leu | Cys | Cys |    |  |  |  |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |    |  |  |  |  |
| Cys | Phe | Leu | Cys | Pro | Val | Arg | Ser | Pro | Gly | Asp | Gly | Gly | Pro | His |    |  |  |  |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |    |  |  |  |  |
| Asp | Val | Phe | Thr | Ser | Leu | Pro | Ser | Asp | Cys | Gln | Leu | Gly | Ser | Arg |    |  |  |  |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |    |  |  |  |  |
| Arg | Leu | Glu | Thr | Thr | Cys | Leu | Glu | Leu | Trp | Leu | Gly | Leu | Leu | His |    |  |  |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |    |  |  |  |  |
| Gly | Leu | Ala | Leu | Leu | His | Leu | Leu | His | Gly | Val | Gly | Cys | His | His |    |  |  |  |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |    |  |  |  |  |
| Leu | Gln | His | Val | His | Gln | Asp | Gly | Ala | Gly | Val | Gln | Val | Gln | Ala |    |  |  |  |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |    |  |  |  |  |

<210> 273

<211> 1158

<212> DNA

<213> Homo sapiens

<400> 273

aactggaagg aaagaaagaa aggtcagctt tggcccagat gtggttaccc 50

cttggtctcc tgtctttatg tctttctcct cttcctattc tgtcatctcc 100

ctcacttaag tctcaggcct gtcagcagct cctgtggaca ttgccatccc 150

ctctggttagc cttcagagca aacaggacaa cctatgttat ggatgtttcc 200

accaaccagg gtagtggcat ggagcaccgt aaccatctgt gcttctgtga 250  
 tctctatgac agagccactt ctccacctct gaaatgttcc ctgctctgaa 300  
 atctggcatg agatggcaca ggtgaccacg cagaagccac cagaatcttg 350  
 cctgccctat tcctcctccc aagtctgttc tcttattgtc aacctcagca 400  
 caacaggctg gcgccaatgg cattacagag aaagcaatct gtgtggctag 450  
 tgggcagatt accatgcaag ccccgaggaga aatggaggag ctttgtagcc 500  
 acctccctgt cagccagtat taacatgtcc ccttccccct gccccgccgt 550  
 agattcagga cattcgcccc tgtgtgccac caaaccagga ctttccccctt 600  
 ggcttggcat ccttggctct ctctgggtac ccagcaagac gtctgttcca 650  
 gggcagtgtg gcatctttca agctccgtta ctatggcgat ggccatgatg 700  
 ttacaatccc acttgccctga ataataaggt gggaagggga agcagagggga 750  
 aatggggcca tgtgaatgca gctgctctgt tctccctacc ctgaggaaaa 800  
 accaaagggga agcaacagga acttctgcaa ctggttttta tcggaaagat 850  
 catcctgcct gcagatgctg ttgaaggggc acaagaaatg tagctggaga 900  
 agattgatga aagtgcaggt gtgtaaggaa atagaacagt ctgctgggag 950  
 tcagacctgg aattctgatt ccaaactctt tattactttg ggaagtcact 1000  
 cagcctcccc gtagccatct ccagggtgac ggaaccagt gtattacctg 1050  
 ctggaaccaa ggaaactaac aatgtaggtt actagtgaat accccaatgg 1100  
 tttctccaat tatgoccatg ccacaaaaac aataaaacaa aattctctaa 1150  
 cactgaaa 1158

<210> 274  
 <211> 86  
 <212> PRT  
 <213> Homo sapiens

<400> 274  
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 Leu Leu Trp Thr Leu Pro Ser Pro Leu Val Ala Phe Arg Ala Asn 45  
 35 40 45  
 Arg Thr Thr Tyr Val Met Asp Val Ser Thr Asn Gln Gly Ser Gly 60  
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<210> 276

<211> 131

<212> PRT

<213> Homo sapiens

<400> 276

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Gly | Ile | Lys | Ala | Leu | Ile | Ser | Leu | Ser | Phe | Gly | Gly | Ala |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Gly | Leu | Met | Phe | Leu | Met | Leu | Gly | Cys | Ala | Leu | Pro | Ile | Tyr |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |

Asn Lys Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser



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 gtca 4104

| Variable               | Mean | Standard deviation | Minimum | Maximum |
|------------------------|------|--------------------|---------|---------|
| Age                    | 34.5 | 10.5               | 18      | 65      |
| Gender                 | 0.5  | 0.5                | 0       | 1       |
| Marital status         | 0.5  | 0.5                | 0       | 1       |
| Education              | 12.5 | 1.5                | 9       | 16      |
| Income                 | 1.5  | 0.5                | 1       | 2       |
| Health status          | 1.5  | 0.5                | 1       | 2       |
| Life satisfaction      | 4.5  | 1.5                | 1       | 7       |
| Work satisfaction      | 4.5  | 1.5                | 1       | 7       |
| Family satisfaction    | 4.5  | 1.5                | 1       | 7       |
| Community satisfaction | 4.5  | 1.5                | 1       | 7       |
| Overall satisfaction   | 4.5  | 1.5                | 1       | 7       |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Phe | Leu | Leu | Leu | Gly | Leu | Cys | Leu | Tyr | Trp | Leu | Leu | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Arg | Pro | Ser | Gly | Val | Val | Leu | Cys | Leu | Leu | Gly | Ala | Cys | Phe | Gln |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Met | Leu | Pro | Ala | Ala | Pro | Ser | Gly | Cys | Pro | Gln | Leu | Cys | Arg | Cys |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Glu | Gly | Arg | Leu | Leu | Tyr | Cys | Glu | Ala | Leu | Asn | Leu | Thr | Glu | Ala |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Pro | His | Asn | Leu | Ser | Gly | Leu | Leu | Gly | Leu | Ser | Leu | Arg | Tyr | Asn |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Ser | Leu | Ser | Glu | Leu | Arg | Ala | Gly | Gln | Phe | Thr | Gly | Leu | Met | Gln |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Leu | Thr | Trp | Leu | Tyr | Leu | Asp | His | Asn | His | Ile | Cys | Ser | Val | Gln |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Gly | Asp | Ala | Phe | Gln | Lys | Leu | Arg | Arg | Val | Lys | Glu | Leu | Thr | Leu |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Ser | Ser | Asn | Gln | Ile | Thr | Gln | Leu | Pro | Asn | Thr | Thr | Phe | Arg | Pro |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Met | Pro | Asn | Leu | Arg | Ser | Val | Asp | Leu | Ser | Tyr | Asn | Lys | Leu | Gln |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Ala | Leu | Ala | Pro | Asp | Leu | Phe | His | Gly | Leu | Arg | Lys | Leu | Thr | Thr |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Leu | His | Met | Arg | Ala | Asn | Ala | Ile | Gln | Phe | Val | Pro | Val | Arg | Ile |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Phe | Gln | Asp | Cys | Arg | Ser | Leu | Lys | Phe | Leu | Asp | Ile | Gly | Tyr | Asn |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Gln | Leu | Lys | Ser | Leu | Ala | Arg | Asn | Ser | Phe | Ala | Gly | Leu | Phe | Lys |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Leu | Thr | Glu | Leu | His | Leu | Glu | His | Asn | Asp | Leu | Val | Lys | Val | Asn |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Phe | Ala | His | Phe | Pro | Arg | Leu | Ile | Ser | Leu | His | Ser | Leu | Cys | Leu |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Arg | Arg | Asn | Lys | Val | Ala | Ile | Val | Val | Ser | Ser | Leu | Asp | Trp | Val |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Trp | Asn | Leu | Glu | Lys | Met | Asp | Leu | Ser | Gly | Asn | Glu | Ile | Glu | Tyr |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Met | Glu | Pro | His | Val | Phe | Glu | Thr | Val | Pro | His | Leu | Gln | Ser | Leu |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Asp | Ser | Asn | Arg | Leu | Thr | Tyr | Ile | Glu | Pro | Arg | Ile | Leu | 290 | 295 | 300 |
| Asn | Ser | Trp | Lys | Ser | Leu | Thr | Ser | Ile | Thr | Leu | Ala | Gly | Asn | Leu | 305 | 310 | 315 |
| Trp | Asp | Cys | Gly | Arg | Asn | Val | Cys | Ala | Leu | Ala | Ser | Trp | Leu | Ser | 320 | 325 | 330 |
| Asn | Phe | Gln | Gly | Arg | Tyr | Asp | Gly | Asn | Leu | Gln | Cys | Ala | Ser | Pro | 335 | 340 | 345 |
| Glu | Tyr | Ala | Gln | Gly | Glu | Asp | Val | Leu | Asp | Ala | Val | Tyr | Ala | Phe | 350 | 355 | 360 |
| His | Leu | Cys | Glu | Asp | Gly | Ala | Glu | Pro | Thr | Ser | Gly | His | Leu | Leu | 365 | 370 | 375 |
| Ser | Ala | Val | Thr | Asn | Arg | Ser | Asp | Leu | Gly | Pro | Pro | Ala | Ser | Ser | 380 | 385 | 390 |
| Ala | Thr | Thr | Leu | Ala | Asp | Gly | Gly | Glu | Gly | Gln | His | Asp | Gly | Thr | 395 | 400 | 405 |
| Phe | Glu | Pro | Ala | Thr | Val | Ala | Leu | Pro | Gly | Gly | Glu | His | Ala | Glu | 410 | 415 | 420 |
| Asn | Ala | Val | Gln | Ile | His | Lys | Val | Val | Thr | Gly | Thr | Met | Ala | Leu | 425 | 430 | 435 |
| Ile | Phe | Ser | Phe | Leu | Ile | Val | Val | Leu | Val | Leu | Tyr | Val | Ser | Trp | 440 | 445 | 450 |
| Lys | Cys | Phe | Pro | Ala | Ser | Leu | Arg | Gln | Leu | Arg | Gln | Cys | Phe | Val | 455 | 460 | 465 |
| Thr | Gln | Arg | Arg | Lys | Gln | Lys | Gln | Lys | Gln | Thr | Met | His | Gln | Met | 470 | 475 | 480 |
| Ala | Ala | Met | Ser | Ala | Gln | Glu | Tyr | Tyr | Val | Asp | Tyr | Lys | Pro | Asn | 485 | 490 | 495 |
| His | Ile | Glu | Gly | Ala | Leu | Val | Ile | Ile | Asn | Glu | Tyr | Gly | Ser | Cys | 500 | 505 | 510 |
| Thr | Cys | His | Gln | Gln | Pro | Ala | Arg | Glu | Cys | Glu | Val |     |     |     | 515 | 520 |     |

<210> 279

<211> 46

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 279

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<210> 280

<211> 709

<212> DNA

<213> Homo sapiens



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Cys | Arg | His | Asp | Asp | Val | Phe | Phe | Pro | Pro | Ser | Ala | Ser | Phe |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Arg | Val | Gly | Leu | Gly | Pro | Gly | Ala | Ser | Pro | Val | Arg | Val | Arg | Ser |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ile | Ser | Ala | Leu | Gly | Arg | Thr | Phe | Thr | Arg | Asp | Glu | Asp | Leu | Ala |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Val | Phe | Leu | Ala | Ser | Arg | Ala | Gly | Arg | Leu | Arg | Phe | His | Gly | Pro |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Gly | Ala | Leu | Ser | Val | Gly | Pro | Glu | Asp | Cys | Ala | Asp | Pro | Ser | Gly |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Cys | Val | Cys | Gly | Asn | Ala | Glu | Ala | Gln | Pro | Trp | Ile | Cys | Ala | Ala |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |

Leu Leu Gln Pro

<210> 282  
 <211> 644  
 <212> DNA  
 <213> Homo sapiens

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<210> 283  
 <211> 77  
 <212> PRT  
 <213> Homo sapiens

<400> 283  
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|   |    |  |    |  |    |
|---|----|--|----|--|----|
|   | 20 |  | 25 |  | 30 |
| Cys Ser Ala Phe Trp Trp His Asn Lys Gly Leu Ala Leu Ile Phe |    |  |    |  |    |
|   | 35 |  | 40 |  | 45 |
| Cys Ile Leu Gln Ser Leu Ala Leu Thr Trp Tyr Ser Leu Ser Phe |    |  |    |  |    |
|   | 50 |  | 55 |  | 60 |
| Ile Pro Phe Ala Arg Asp Ala Val Lys Lys Cys Phe Ala Val Cys |    |  |    |  |    |
|   | 65 |  | 70 |  | 75 |
| Leu Ala   |    |  |    |  |    |

<210> 284  
 <211> 2623  
 <212> DNA  
 <213> Homo sapiens

<400> 284  
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 gagagaaaat tagggggaga aaggacagag agagcaacta ccatccatag 200  
 ccagatagat tatcttacac tgaactgatc aagtactttg aaaatgactt 250  
 cgaaatttat cttggtgtcc ttcatacttg ctgcactgag tctttcaacc 300  
 accttttctc tccaactaga ccagcaaaag gttctactag tttcttttga 350  
 tggattccgt tgggattact tatataaagt tccaacgccc cattttcatt 400  
 atattatgaa atatggtggt cacgtgaagc aagttactaa tgtttttatt 450  
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gataatgtat atatttagca actttgcact atgtaaagta ctttatatat 2000  
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aagaaggtga taagtgttga aaattaaatg tgataacctt tgaaccttga 2250  
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<210> 285





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|-------------------------------------|-------------------------|-----|
| Val Pro Glu Arg Trp His Tyr Lys Tyr | Asn Ser Arg Ile Gln Pro |     |
| 305                                 | 310                     | 315 |
| Ile Ile Ala Val Ala Asp Glu Gly Trp | His Ile Leu Gln Asn Lys |     |
| 320                                 | 325                     | 330 |
| Ser Asp Asp Phe Leu Leu Gly Asn His | Gly Tyr Asp Asn Ala Leu |     |
| 335                                 | 340                     | 345 |
| Ala Asp Met His Pro Ile Phe Leu Ala | His Gly Pro Ala Phe Arg |     |
| 350                                 | 355                     | 360 |
| Lys Asn Phe Ser Lys Glu Ala Met Asn | Ser Thr Asp Leu Tyr Pro |     |
| 365                                 | 370                     | 375 |
| Leu Leu Cys His Leu Leu Asn Ile Thr | Ala Met Pro His Asn Gly |     |
| 380                                 | 385                     | 390 |
| Ser Phe Trp Asn Val Gln Asp Leu Leu | Asn Ser Ala Met Pro Arg |     |
| 395                                 | 400                     | 405 |
| Val Val Pro Tyr Thr Gln Ser Thr Ile | Leu Leu Pro Gly Ser Val |     |
| 410                                 | 415                     | 420 |
| Lys Pro Ala Glu Tyr Asp Gln Glu Gly | Ser Tyr Pro Tyr Phe Ile |     |
| 425                                 | 430                     | 435 |
| Gly Val Ser Leu Gly Ser Ile Ile Val | Ile Val Phe Phe Val Ile |     |
| 440                                 | 445                     | 450 |
| Phe Ile Lys His Leu Ile His Ser Gln | Ile Pro Ala Leu Gln Asp |     |
| 455                                 | 460                     | 465 |
| Met His Ala Glu Ile Ala Gln Pro Leu | Leu Gln Ala             |     |
| 470                                 | 475                     |     |

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 <211> 1337  
 <212> DNA  
 <213> Homo sapiens

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 tcacacagcc aaaggaggca gagccagaac tcacaaccag atccagaggc 200  
 aacagggaca tggccacctg ggacgaaaag gcagtcaccc gcagggccaa 250  
 ggtggctccc gctgagagga tgagcaagtt ctttaaggcac ttcacggtcg 300  
 tgggagacga ctaccatgcc tggaacatca actacaagaa atggggagaat 350  
 gaagaggagg aggaggagga ggagcagcca ccaccacac cagtctcagg 400  
 cgaggaaggc agagctgcag cccctgacgt tgcccctgcc cctggccccg 450  
 caccagggc ccccttgac ttcaggggca tggttgaggaa actgttcagc 500



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Leu | Asp | Leu | Lys | Ile | Ile | Gln | Pro | Asp | Lys | Asn | Asn | Tyr | Ala |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ala | Met | Val | Phe | His | Tyr | Met | Ser | Ile | Thr | Ile | Leu | Val | Phe | Phe |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Met | Met | Glu | Ile | Ile | Phe | Lys | Leu | Phe | Val | Phe | Arg | Leu | Ser | Ser |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Phe | Thr | Thr | Ser | Leu | Arg | Ser | Trp | Met | Pro | Val | Val | Val | Val | Val |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Ser | Phe | Ile | Leu | Asp | Ile | Val | Leu | Leu | Phe | Gln | Glu | His | Gln | Phe |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Glu | Ala | Leu | Gly | Leu | Leu | Ile | Leu | Leu | Arg | Leu | Trp | Arg | Val | Ala |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Arg | Ile | Ile | Asn | Gly | Ile | Ile | Ile | Ser | Val | Lys | Thr | Arg | Ser | Glu |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Arg | Gln | Leu | Leu | Arg | Leu | Lys | Gln | Met | Asn | Val | Gln | Leu | Ala | Ala |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Lys | Ile | Gln | His | Leu | Glu | Phe | Ser | Cys | Ser | Glu | Lys | Pro | Leu | Asp |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |

<210> 288  
 <211> 3334  
 <212> DNA  
 <213> Homo sapiens

<400> 288  
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 cccagaccga gttccagtac tttgagtcga aggggctccc tgccgagctg 150  
 aagtcatttt tcaagctcag tgtcttcac cctcccagg aattctccac 200  
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 atgggcagct agactttgaa gaatttgtcc attatctcca agatcatgag 300  
 aagaagctga ggctggtggt taagattttg gacaaaaaga atgatggacg 350  
 cattgacgog caggagatca tgcagtcctt gcgggacttg ggagtcaaga 400  
 tatctgaaca gcaggcagaa aaaatttcta agagcatgga taaaaacggc 450  
 acgatgacca tgaactggaa cgagtggaga gactaccacc tcctccaccc 500  
 cgtggaaaac atccccgaga tcattctcta ctggaagcat tccacgatct 550  
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 aggcagacgg ggatgtggtg gagacacctg gtggcaggag gtggggcagg 650  
 ggccgtatcc agaacctgca cggccccctt ggacaggctc aagtggtc 700  
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catcaacgtc ctcaaaattg cccccgaatc agccatcaaa ttcattggcct 850  
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cacgagaggc ttgtggcagg gtccttggca ggggccatcg cccagagcag 950  
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 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 3334

<210> 289  
 <211> 469  
 <212> PRT  
 <213> Homo sapiens

<400> 289  
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 Thr Glu Phe Gln Tyr Phe Glu Ser Lys Gly Leu Pro Ala Glu Leu  
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 Lys Ser Ile Phe Lys Leu Ser Val Phe Ile Pro Ser Gln Glu Phe  
 35 40 45  
 Ser Thr Tyr Arg Gln Trp Lys Gln Lys Ile Val Gln Ala Gly Asp  
 50 55 60  
 Lys Asp Leu Asp Gly Gln Leu Asp Phe Glu Glu Phe Val His Tyr  
 65 70 75  
 Leu Gln Asp His Glu Lys Lys Leu Arg Leu Val Phe Lys Ile Leu  
 80 85 90



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Ala | Gln | Ala | Ser | Ile | Glu | Gly | Ala | Pro | Glu | Val | Thr | Met | Ser |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Ser | Leu | Phe | Lys | His | Ile | Leu | Arg | Thr | Glu | Gly | Ala | Phe | Gly | Leu |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Tyr | Arg | Gly | Leu | Ala | Pro | Asn | Phe | Met | Lys | Val | Ile | Pro | Ala | Val |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Ser | Ile | Ser | Tyr | Val | Val | Tyr | Glu | Asn | Leu | Lys | Ile | Thr | Leu | Gly |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |

Val Gln Ser Arg

<210> 290  
 <211> 1658  
 <212> DNA  
 <213> Homo sapiens

<400> 290  
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 atttcagggg gacactccat cacagtcact actgtcgct cagctgggaa 200  
 cattggggag gatggaatcc tgagctgcac ttttgaaact gacatcaaac 250  
 tttctgatat cgtgatacaa tggctgaagg aaggtgtttt aggcttggtc 300  
 catgagttca aagaaggcaa agatgagctg tcggagcagg atgaaatggt 350  
 cagaggccgg acagcagtgt ttgctgatca agtgatagtt ggcaatgcct 400  
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 tctacaatgt tacgatcaac aacacatact cctgtatgat tgaaaatgac 750  
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agcaagaaac aaaaagaagc caaaagcaga aggcctccaat atgaacaaga 1100  
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 ccaactgaca aatgccaaag ttgagaaaaa tgatcataat tttagcataa 1550  
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 ttaaacaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1650  
 aaaaaaaaa 1658

<210> 291  
 <211> 282  
 <212> PRT  
 <213> Homo sapiens

<400> 291  
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 20 25 30  
 Ile Ser Gly Arg His Ser Ile Thr Val Thr Thr Val Ala Ser Ala  
 35 40 45  
 Gly Asn Ile Gly Glu Asp Gly Ile Leu Ser Cys Thr Phe Glu Pro  
 50 55 60  
 Asp Ile Lys Leu Ser Asp Ile Val Ile Gln Trp Leu Lys Glu Gly  
 65 70 75  
 Val Leu Gly Leu Val His Glu Phe Lys Glu Gly Lys Asp Glu Leu  
 80 85 90  
 Ser Glu Gln Asp Glu Met Phe Arg Gly Arg Thr Ala Val Phe Ala  
 95 100 105  
 Asp Gln Val Ile Val Gly Asn Ala Ser Leu Arg Leu Lys Asn Val  
 110 115 120  
 Gln Leu Thr Asp Ala Gly Thr Tyr Lys Cys Tyr Ile Ile Thr Ser  
 125 130 135  
 Lys Gly Lys Gly Asn Ala Asn Leu Glu Tyr Lys Thr Gly Ala Phe  
 140 145 150  
 Ser Met Pro Glu Val Asn Val Asp Tyr Asn Ala Ser Ser Glu Thr



|                                     |                     |     |
|-------------------------------------|---------------------|-----|
| 155                                 | 160                 | 165 |
| Leu Arg Cys Glu Ala Pro Arg Trp Phe | Pro Gln Pro Thr Val | Val |
| 170                                 | 175                 | 180 |
| Trp Ala Ser Gln Val Asp Gln Gly Ala | Asn Phe Ser Glu Val | Ser |
| 185                                 | 190                 | 195 |
| Asn Thr Ser Phe Glu Leu Asn Ser Glu | Asn Val Thr Met Lys | Val |
| 200                                 | 205                 | 210 |
| Val Ser Val Leu Tyr Asn Val Thr Ile | Asn Asn Thr Tyr Ser | Cys |
| 215                                 | 220                 | 225 |
| Met Ile Glu Asn Asp Ile Ala Lys Ala | Thr Gly Asp Ile Lys | Val |
| 230                                 | 235                 | 240 |
| Thr Glu Ser Glu Ile Lys Arg Arg Ser | His Leu Gln Leu Leu | Asn |
| 245                                 | 250                 | 255 |
| Ser Lys Ala Ser Leu Cys Val Ser Ser | Phe Phe Ala Ile Ser | Trp |
| 260                                 | 265                 | 270 |
| Ala Leu Leu Pro Leu Ser Pro Tyr Leu | Met Leu Lys         |     |
| 275                                 | 280                 |     |

<210> 292  
 <211> 1484  
 <212> DNA  
 <213> Homo sapiens

<400> 292  
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 aatttcactc tgcatcacia gctcagtgag taagaccagc gggcaacagt 750  
 ctaccctttg agtggggcga acccacttcc agctctgctg cctccaggaa 800



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Pro | Leu | Gln | Leu | Phe | Cys | Phe | Leu | Val | Ala | Ile | Arg | Val | Pro |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Phe | Pro | Trp | Thr | Val | Trp | Arg | Lys | Thr | Glu | Ala | Gly | Val | Trp | Asp |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |

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 <211> 1164  
 <212> DNA  
 <213> Homo sapiens

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 cggcctaaga tgccacttct tctcatgtcc caggcttgag gccctgtggt 200  
 ccccatcctt gggagaagtc agctccagca ccatgaaggg catcctcggt 250  
 gctggtatca ctgcagtgtg tgttcagct gtagaatctc tgagctgctg 300  
 gcagtgtaat tcatgggaaa aatcctgtgt caacagcatt gcctctgaat 350  
 gtccctcaca tgccaacacc agctgtatca gctcctcagc cagctcctct 400  
 ctagagacac cagtcagatt ataccagaat atgttctgct cagcggagaa 450  
 ctgcagtgtg gagacacaca ttacagcctt cactgtccac gtgtctgctg 500  
 aagaacactt tcattttgta agccagtgtg gccaaggaaa ggaatgcagc 550  
 aacaccagcg atgccttga cctcccttg aagaacgtgt ccagcaacgc 600  
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 cctggaaatg ctatgaagaa gaacagtgtg tctttctagt tgcagaactt 700  
 aagaatgaca ttgagtctaa gagtctcgtg ctgaaaggct gttccaacgt 750  
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 aaaaaaaaaa aaaa 1164

<210> 295  
 <211> 237  
 <212> PRT

<213> Homo sapiens

<400> 295

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35 40 45  
Thr Ser Cys Ile Ser Ser Ser Ala Ser Ser Ser Leu Glu Thr Pro  
50 55 60  
Val Arg Leu Tyr Gln Asn Met Phe Cys Ser Ala Glu Asn Cys Ser  
65 70 75  
Glu Glu Thr His Ile Thr Ala Phe Thr Val His Val Ser Ala Glu  
80 85 90  
Glu His Phe His Phe Val Ser Gln Cys Cys Gln Gly Lys Glu Cys  
95 100 105  
Ser Asn Thr Ser Asp Ala Leu Asp Pro Pro Leu Lys Asn Val Ser  
110 115 120  
Ser Asn Ala Glu Cys Pro Ala Cys Tyr Glu Ser Asn Gly Thr Ser  
125 130 135  
Cys Arg Gly Lys Pro Trp Lys Cys Tyr Glu Glu Glu Gln Cys Val  
140 145 150  
Phe Leu Val Ala Glu Leu Lys Asn Asp Ile Glu Ser Lys Ser Leu  
155 160 165  
Val Leu Lys Gly Cys Ser Asn Val Ser Asn Ala Thr Cys Gln Phe  
170 175 180  
Leu Ser Gly Glu Asn Lys Thr Leu Gly Gly Val Ile Phe Arg Lys  
185 190 195  
Phe Glu Cys Ala Asn Val Asn Ser Leu Thr Pro Thr Ser Ala Pro  
200 205 210  
Thr Thr Ser His Asn Val Gly Ser Lys Ala Ser Leu Tyr Leu Leu  
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Ala Leu Ala Ser Leu Leu Leu Arg Gly Leu Leu Pro  
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<210> 296

<211> 1245

<212> DNA

<213> Homo sapiens

<400> 296

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aatctgggtc cccgggcggc gggggcccaa ggctgaccc agactccgac 200  
 cgaaatgcag cgggtcagtt tacgctttgg gggcccatg acccgagct 250  
 accggagcac cgcccgact ggtcttcccc ggaagacaag gataatccta 300  
 gaggacgaga atgatgccat ggccgacgcc gaccgcctgg ctggaccagc 350  
 ggctgccgag ctcttgccg ccacgggtgc caccggcttt agccggtcgt 400  
 ccgccattaa cgaggaggat gggctcttcag aagaggggggt tgtgattaat 450  
 gccggaaagg atagcaccag cagagagctt ccagtgcca ctccaatac 500  
 agcggggagt tccagcacga ggtttatagc caatagtcag gagcctgaaa 550  
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 ctgccaggct cgcaggccac cctgagccag tgggtccacac ctgggtctac 650  
 cccgagccgg tggccgtcac cctcaccac agccatgcca tctcctgagg 700  
 atctgcggct ggtgctgatg ccctggggcc cgtggcactg cactgcaag 750  
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 gcgccttcga gttggggcgc tgagccagct ccgcacggag cacaagcctt 850  
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 gacacaagtc tctgtactga caccaactgt gcctctcaga gcaccaccag 950  
 taccaggacc accactaccc ccttccccac catccacctc agaagcagtc 1000  
 ccagcctgcc acccgccagc ccctgccag ccctggcttt ttggaaacgg 1050  
 gtcaggattg gcctggagga tatttggaat agcctctctt cagtgttcac 1100  
 agagatgcaa ccaatagaca gaaaccagag gtaatggcca cttcatccac 1150  
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<210> 297

<211> 341

<212> PRT

<213> Homo sapiens

<400> 297

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Pro | Ala | Ala | Gly | Ala | Leu | Leu | Trp | Val | Leu | Leu | Leu | Asn |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Gly | Pro | Arg | Ala | Ala | Gly | Ala | Gln | Gly | Leu | Thr | Gln | Thr | Pro |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Thr | Glu | Met | Gln | Arg | Val | Ser | Leu | Arg | Phe | Gly | Gly | Pro | Met | Thr |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Arg | Ser | Tyr | Arg | Ser | Thr | Ala | Arg | Thr | Gly | Leu | Pro | Arg | Lys | Thr |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Arg | Ile | Ile | Leu | Glu | Asp | Glu | Asn | Asp | Ala | Met | Ala | Asp | Ala | Asp |

| 65  |     |     |     |     |     |     |     |     |     | 70  |     |     |     |     | 75  |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Arg | Leu | Ala | Gly | Pro | Ala | Ala | Ala | Glu | Leu | Leu | Leu | Ala | Ala | Thr | Val |  |  |  |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     |     | 90  |  |  |  |  |
| Ser | Thr | Gly | Phe | Ser | Arg | Ser | Ser | Ala | Ile | Asn | Glu | Glu | Asp | Gly |     |  |  |  |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |     |  |  |  |  |
| Ser | Ser | Glu | Glu | Gly | Val | Val | Ile | Asn | Ala | Gly | Lys | Asp | Ser | Thr |     |  |  |  |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |     |  |  |  |  |
| Ser | Arg | Glu | Leu | Pro | Ser | Ala | Thr | Pro | Asn | Thr | Ala | Gly | Ser | Ser |     |  |  |  |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |     |  |  |  |  |
| Ser | Thr | Arg | Phe | Ile | Ala | Asn | Ser | Gln | Glu | Pro | Glu | Ile | Arg | Leu |     |  |  |  |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |     |  |  |  |  |
| Thr | Ser | Ser | Leu | Pro | Arg | Ser | Pro | Gly | Arg | Ser | Thr | Glu | Asp | Leu |     |  |  |  |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |     |  |  |  |  |
| Pro | Gly | Ser | Gln | Ala | Thr | Leu | Ser | Gln | Trp | Ser | Thr | Pro | Gly | Ser |     |  |  |  |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |     |  |  |  |  |
| Thr | Pro | Ser | Arg | Trp | Pro | Ser | Pro | Ser | Pro | Thr | Ala | Met | Pro | Ser |     |  |  |  |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |     |  |  |  |  |
| Pro | Glu | Asp | Leu | Arg | Leu | Val | Leu | Met | Pro | Trp | Gly | Pro | Trp | His |     |  |  |  |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |     |  |  |  |  |
| Cys | His | Cys | Lys | Ser | Gly | Thr | Met | Ser | Arg | Ser | Arg | Ser | Gly | Lys |     |  |  |  |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |     |  |  |  |  |
| Leu | His | Gly | Leu | Ser | Gly | Arg | Leu | Arg | Val | Gly | Ala | Leu | Ser | Gln |     |  |  |  |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |  |  |  |  |
| Leu | Arg | Thr | Glu | His | Lys | Pro | Cys | Thr | Tyr | Gln | Gln | Cys | Pro | Cys |     |  |  |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |  |  |  |
| Asn | Arg | Leu | Arg | Glu | Glu | Cys | Pro | Leu | Asp | Thr | Ser | Leu | Cys | Thr |     |  |  |  |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |  |  |  |  |
| Asp | Thr | Asn | Cys | Ala | Ser | Gln | Ser | Thr | Thr | Ser | Thr | Arg | Thr | Thr |     |  |  |  |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |  |  |  |  |
| Thr | Thr | Pro | Phe | Pro | Thr | Ile | His | Leu | Arg | Ser | Ser | Pro | Ser | Leu |     |  |  |  |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |  |  |  |  |
| Pro | Pro | Ala | Ser | Pro | Cys | Pro | Ala | Leu | Ala | Phe | Trp | Lys | Arg | Val |     |  |  |  |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |  |  |  |  |
| Arg | Ile | Gly | Leu | Glu | Asp | Ile | Trp | Asn | Ser | Leu | Ser | Ser | Val | Phe |     |  |  |  |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |     |  |  |  |  |
| Thr | Glu | Met | Gln | Pro | Ile | Asp | Arg | Asn | Gln | Arg |     |     |     |     |     |  |  |  |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     |     |     |  |  |  |  |

<210> 298

<211> 2692

<212> DNA

<213> Homo sapiens

<400> 298

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<210> 299  
 <211> 320  
 <212> PRT  
 <213> Homo sapiens

<400> 299  
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 35 40 45  
 Leu Asn His Phe Arg Ser Arg Gln Pro Ile Tyr Met Ser Leu Ala  
 50 55 60  
 Gly Trp Thr Cys Arg Asp Asp Cys Lys Tyr Glu Cys Met Trp Val  
 65 70 75



Thr Val Gly Leu Tyr Leu Gln Glu Gly His Lys Val Pro Gln Phe  
 80 85 90  
 His Gly Lys Trp Pro Phe Ser Arg Phe Leu Phe Phe Gln Glu Pro  
 95 100 105  
 Ala Ser Ala Val Ala Ser Phe Leu Asn Gly Leu Ala Ser Leu Val  
 110 115 120  
 Met Leu Cys Arg Tyr Arg Thr Phe Val Pro Ala Ser Ser Pro Met  
 125 130 135  
 Tyr His Thr Cys Val Ala Phe Ala Trp Val Ser Leu Asn Ala Trp  
 140 145 150  
 Phe Trp Ser Thr Val Phe His Thr Arg Asp Thr Asp Leu Thr Glu  
 155 160 165  
 Lys Met Asp Tyr Phe Cys Ala Ser Thr Val Ile Leu His Ser Ile  
 170 175 180  
 Tyr Leu Cys Cys Val Arg Thr Val Gly Leu Gln His Pro Ala Val  
 185 190 195  
 Val Ser Ala Phe Arg Ala Leu Leu Leu Leu Met Leu Thr Val His  
 200 205 210  
 Val Ser Tyr Leu Ser Leu Ile Arg Phe Asp Tyr Gly Tyr Asn Leu  
 215 220 225  
 Val Ala Asn Val Ala Ile Gly Leu Val Asn Val Val Trp Trp Leu  
 230 235 240  
 Ala Trp Cys Leu Trp Asn Gln Arg Arg Leu Pro His Val Arg Lys  
 245 250 255  
 Cys Val Val Val Val Leu Leu Leu Gln Gly Leu Ser Leu Leu Glu  
 260 265 270  
 Leu Leu Asp Phe Pro Pro Leu Phe Trp Val Leu Asp Ala His Ala  
 275 280 285  
 Ile Trp His Ile Ser Thr Ile Pro Val His Val Leu Phe Phe Ser  
 290 295 300  
 Phe Leu Glu Asp Asp Ser Leu Tyr Leu Leu Lys Glu Ser Glu Asp  
 305 310 315  
 Lys Phe Lys Leu Asp  
 320

<210> 300

<211> 1674

<212> DNA

<213> Homo sapiens

<400> 300

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cctctgggca tgctgcttgg gctgctgatg gccgcctgct tcaccttctg 150

|          |        |          |        |          |          |          |        |          |          |      |
|----------|--------|----------|--------|----------|----------|----------|--------|----------|----------|------|
| cctcagtc | cat    | cagaac   | ctga   | aggagt   | tttgc    | cctgacca | ac     | ccagaga  | aaga     | 200  |
| gcagcac  | caa    | agaa     | cggag  | agaaa    | agaaa    | ccaaag   | ccga   | ggaggag  | ctg      | 250  |
| gatgcc   | gaag   | tcctg    | gaggt  | gttcc    | acccg    | acgcat   | gagt   | ggcagg   | ccct     | 300  |
| tcagcc   | cagg   | gtgtcc   | ctgc   | caggat   | c        | ccacgt   | acgg   | ctgaat   | cttc     | 350  |
| agactg   | ggga   | aagag    | aggca  | aaact    | ccaat    | atgagg   | gaca   | gttccg   | aaat     | 400  |
| aatttg   | aaag   | gcaaa    | aggct  | ggatat   | caac     | accaac   | ac     | acacat   | ctca     | 450  |
| ggatct   | caag   | agtgc    | actgg  | caaa     | attcaa   | ggaggg   | ggca   | gagatg   | ggaga    | 500  |
| gttcaa   | agga   | agaca    | aggca  | aggc     | aggctg   | aggtaa   | agcg   | gctctt   | ccgc     | 550  |
| cccatt   | gagg   | aactga   | agaa   | agact    | ttgat    | gagctg   | aatg   | ttgtc    | attga    | 600  |
| gactga   | catg   | cagat    | catgg  | tacgg    | ctgat    | caaca    | agttc  | aatagt   | ttcca    | 650  |
| gctcc    | agttt  | ggaag    | agaag  | attgt    | ctgcg    | ctttt    | gatct  | tgaat    | attat    | 700  |
| gtccat   | caga   | tggaca   | aatgc  | gcagg    | acctg    | ctttc    | ctttg  | gtggt    | cttca    | 750  |
| agtgg    | tgatc  | aatggg   | ctga   | acagc    | acaga    | gccc     | ctcgtg | aaggag   | tatg     | 800  |
| ctgcg    | tttgt  | gctggg   | cgct   | gc       | cttttcca | gcaac    | cccaa  | gg       | ccagg    | 850  |
| gaggcc   | atcg   | aagggg   | ggagc  | cctgc    | cagaag   | ctgct    | gg     | tca      | tcctg    | 900  |
| ggagc    | agccg  | ctcact   | gcaa   | agaaga   | aggt     | cctgt    | tttga  | ctgtg    | ctccc    | 950  |
| tgtg     | cgcca  | cttccc   | ctat   | gcc      | cagcggc  | agttc    | ctgaa  | gctc     | ggggg    | 1000 |
| ctgc     | aggtcc | tgagg    | accct  | ggtgc    | caggag   | aaggg    | cacgg  | aggtg    | ctcgc    | 1050 |
| cgtg     | cgcg   | gtg      | cactgc | tctac    | gacct    | ggtc     | acggag | aagat    | gttcg    | 1100 |
| ccgag    | gagga  | ggctg    | agctg  | acc      | caggaga  | tgtccc   | caga   | gaag     | ctgcag   | 1150 |
| cagtat   | cgcc   | aggtac   | ac     | cctg     | ccaggc   | ctgtg    | gg     | aac      | agggct   | 1200 |
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| aggtg    | ctgca  | gacact   | gggc   | gtc      | ctcctga  | ccac     | ctg    | ccg      | ggacc    | 1300 |
| cg       | tcagg  | acc      | cccag  | ctcgg    | caggac   | actg     | gccag  | cctgc    | aggct    | 1350 |
| ccaggt   | gctg   | gccag    | cctgg  | agctg    | cagga    | tgg      | tgagg  | ac       | gaggg    | 1400 |
| tccag    | gagct  | gctggg   | ctct   | gtca     | acagct   | tgct     | gaagga | gctg     | agatga   | 1450 |
| ggcccc   | acac   | cagg     | actgga | ctggg    | atgcc    | gctag    | tgagg  | ctgag    | gggtg    | 1500 |
| ccagc    | gtggg  | tggg     | cttctc | aggc     | aggagg   | acat     | cttggc | agt      | gctggct  | 1550 |
| tggcc    | attaa  | atgg     | aa     | ac       | ct       | gaagg    | ccaaa  | aaaaaaaa | aaaaaaaa | 1600 |
| aaaaaaaa |        | aaaaaaaa |        | aaaaaaaa |          | aaaaaaaa |        | aaaaaaaa |          | 1650 |
| aaaaaaaa |        | aaaaaaaa |        | aaaa     |          | 1674     |        |          |          |      |

<210> 301

<211> 461  
 <212> PRT  
 <213> Homo sapiens

<400> 301

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Ala | Pro | Gln | Ser | Leu | Pro | Ser | Ser | Arg | Met | Ala | Pro | Leu | Gly | 1   | 5   | 10  | 15 |
| Met | Leu | Leu | Gly | Leu | Leu | Met | Ala | Ala | Cys | Phe | Thr | Phe | Cys | Leu | 20  | 25  | 30  |    |
| Ser | His | Gln | Asn | Leu | Lys | Glu | Phe | Ala | Leu | Thr | Asn | Pro | Glu | Lys | 35  | 40  | 45  |    |
| Ser | Ser | Thr | Lys | Glu | Thr | Glu | Arg | Lys | Glu | Thr | Lys | Ala | Glu | Glu | 50  | 55  | 60  |    |
| Glu | Leu | Asp | Ala | Glu | Val | Leu | Glu | Val | Phe | His | Pro | Thr | His | Glu | 65  | 70  | 75  |    |
| Trp | Gln | Ala | Leu | Gln | Pro | Gly | Gln | Ala | Val | Pro | Ala | Gly | Ser | His | 80  | 85  | 90  |    |
| Val | Arg | Leu | Asn | Leu | Gln | Thr | Gly | Glu | Arg | Glu | Ala | Lys | Leu | Gln | 95  | 100 | 105 |    |
| Tyr | Glu | Asp | Lys | Phe | Arg | Asn | Asn | Leu | Lys | Gly | Lys | Arg | Leu | Asp | 110 | 115 | 120 |    |
| Ile | Asn | Thr | Asn | Thr | Tyr | Thr | Ser | Gln | Asp | Leu | Lys | Ser | Ala | Leu | 125 | 130 | 135 |    |
| Ala | Lys | Phe | Lys | Glu | Gly | Ala | Glu | Met | Glu | Ser | Ser | Lys | Glu | Asp | 140 | 145 | 150 |    |
| Lys | Ala | Arg | Gln | Ala | Glu | Val | Lys | Arg | Leu | Phe | Arg | Pro | Ile | Glu | 155 | 160 | 165 |    |
| Glu | Leu | Lys | Lys | Asp | Phe | Asp | Glu | Leu | Asn | Val | Val | Ile | Glu | Thr | 170 | 175 | 180 |    |
| Asp | Met | Gln | Ile | Met | Val | Arg | Leu | Ile | Asn | Lys | Phe | Asn | Ser | Ser | 185 | 190 | 195 |    |
| Ser | Ser | Ser | Leu | Glu | Glu | Lys | Ile | Ala | Ala | Leu | Phe | Asp | Leu | Glu | 200 | 205 | 210 |    |
| Tyr | Tyr | Val | His | Gln | Met | Asp | Asn | Ala | Gln | Asp | Leu | Leu | Ser | Phe | 215 | 220 | 225 |    |
| Gly | Gly | Leu | Gln | Val | Val | Ile | Asn | Gly | Leu | Asn | Ser | Thr | Glu | Pro | 230 | 235 | 240 |    |
| Leu | Val | Lys | Glu | Tyr | Ala | Ala | Phe | Val | Leu | Gly | Ala | Ala | Phe | Ser | 245 | 250 | 255 |    |
| Ser | Asn | Pro | Lys | Val | Gln | Val | Glu | Ala | Ile | Glu | Gly | Gly | Ala | Leu | 260 | 265 | 270 |    |
| Gln | Lys | Leu | Leu | Val | Ile | Leu | Ala | Thr | Glu | Gln | Pro | Leu | Thr | Ala | 275 | 280 | 285 |    |
| Lys | Lys | Lys | Val | Leu | Phe | Ala | Leu | Cys | Ser | Leu | Leu | Arg | His | Phe |     |     |     |    |

|                                     |                         |     |
|-------------------------------------|-------------------------|-----|
| 290                                 | 295                     | 300 |
| Pro Tyr Ala Gln Arg Gln Phe Leu Lys | Leu Gly Gly Leu Gln Val |     |
| 305                                 | 310                     | 315 |
| Leu Arg Thr Leu Val Gln Glu Lys Gly | Thr Glu Val Leu Ala Val |     |
| 320                                 | 325                     | 330 |
| Arg Val Val Thr Leu Leu Tyr Asp Leu | Val Thr Glu Lys Met Phe |     |
| 335                                 | 340                     | 345 |
| Ala Glu Glu Glu Ala Glu Leu Thr Gln | Glu Met Ser Pro Glu Lys |     |
| 350                                 | 355                     | 360 |
| Leu Gln Gln Tyr Arg Gln Val His Leu | Leu Pro Gly Leu Trp Glu |     |
| 365                                 | 370                     | 375 |
| Gln Gly Trp Cys Glu Ile Thr Ala His | Leu Leu Ala Leu Pro Glu |     |
| 380                                 | 385                     | 390 |
| His Asp Ala Arg Glu Lys Val Leu Gln | Thr Leu Gly Val Leu Leu |     |
| 395                                 | 400                     | 405 |
| Thr Thr Cys Arg Asp Arg Tyr Arg Gln | Asp Pro Gln Leu Gly Arg |     |
| 410                                 | 415                     | 420 |
| Thr Leu Ala Ser Leu Gln Ala Glu Tyr | Gln Val Leu Ala Ser Leu |     |
| 425                                 | 430                     | 435 |
| Glu Leu Gln Asp Gly Glu Asp Glu Gly | Tyr Phe Gln Glu Leu Leu |     |
| 440                                 | 445                     | 450 |
| Gly Ser Val Asn Ser Leu Leu Lys Glu | Leu Arg                 |     |
| 455                                 | 460                     |     |

<210> 302  
 <211> 2136  
 <212> DNA  
 <213> Homo sapiens

<400> 302  
 ttcggcttcc gtagaggaag tggcgcgac cttcatttgg ggtttcgggtt 50  
 ccccccttc ccttccccg gggctctgggg gtgacattgc accgcgcccc 100  
 tcgtgggggtc gcggttgccac cccacgcgga ctccccagct ggcgcgcccc 150  
 tcccatttgc ctgtcctggt caggccccca ccccccttcc cacctgacca 200  
 gccatggggg ctgcggtgtt tttcggctgc actttcgtcg cgttcggccc 250  
 ggccttcgcg cttttcttga tcaactgtggc tggggaccgc cttcgcgtta 300  
 tcacctcgtt cgcaggggca tttttctggc tgggtctccct gtccttgccc 350  
 tctgtggtct ggttcatctt ggtccatgtg accgaccggt cagatgcccg 400  
 gctccagtac ggcctcctga tttttggtgc tgctgtctct gtccttctac 450  
 aggaggtgtt ccgctttgcc tactacaagc tgcttaagaa ggcagatgaa 500  
 gggtagcat cgctgagtga ggacggaaga tcacccatct ccatccgcca 550

gatggcctat gtttctggtc tctccttcgg tatcatcagt ggtgtcttct 600  
 ctgttatcaa tattttggct gatgcacttg ggccagggtg ggttgggata 650  
 catggagact caccctatta cttcctgact tcagcctttc tgacagcagc 700  
 cattatcctg ctccatacct tttggggagt tgtgttcttt gatgcctgtg 750  
 agaggagacg gtactgggct ttgggcctgg tggttgggag tcacctactg 800  
 acatcgggac tgacattcct gaacccttg tatgaggcca gcctgctgoc 850  
 catctatgca gtcactgttt ccatggggct ctgggccttc atcacagctg 900  
 gagggtcctt ccgaagtatt cagcgcagcc tcttgtgtaa ggactgacta 950  
 cctggactga tcgcctgaca gatccacact gcctgtccac tgcccatgac 1000  
 tgagcccagc cccagcccgg gtccattgcc cacattctct gtctccttct 1050  
 cgtcgggtcta cccactacc tccagggttt tgctttgtcc ttttgtgacc 1100  
 gttagtctct aagctttacc aggagcagcc tgggttcagc cagtcagtga 1150  
 ctggtggggt tgaatctgca cttatcccca ccacctgggg acccccttgt 1200  
 tgtgtccagg actccccctg tgtcagtgt ctgctctcac cctgcccagg 1250  
 actcacctcc cttccccctc gcaggccgac ggcaggagga cagtcgggtg 1300  
 atggtgtatt ctgccctgcg catcccaccc gaggactgag ggaacctagg 1350  
 ggggacctct gggcctgggg tgccctcctg atgtcctcgc cctgtatttc 1400  
 tccatctcca gttctggaca gtgcagggtg ccaagaaaag ggacctagtt 1450  
 tagccattgc cctggagatg aaattaatgg aggctcaagg atagatgagc 1500  
 tctgagtttc tcagtactcc ctcaagactg gacatcttgg tctttttctc 1550  
 aggctgagg gggaaccatt tttggtgtga taaataccct aaactgcctt 1600  
 tttttctttt ttgaggtggg gggagggagg aggtatattg gaactcttct 1650  
 aacctccttg ggctatattt tctctcctcg agttgctcct catggctggg 1700  
 ctcatctcgg tccctttctc cttggtccca gaccttgggg gaaaggaagg 1750  
 aagtgcattg ttgggaactg gcattactgg aactaatgtt ttaacctcc 1800  
 ttaaccacca gcatccctcc tctccccaag gtgaagtgga gggtgctgtg 1850  
 gtgagctggc cactccagag ctgcagtgcc actggaggag tcagactacc 1900  
 atgacatcgt aggggaaggag gggagatttt tttgtagttt ttaattgggg 1950  
 tgtgggaggg gcggggaggt tttctataaa ctgtatcatt ttctgctgag 2000  
 ggtggagtg cccatccttt taatcaaggt gattgtgatt ttgactaata 2050  
 aaaaagaatt tgtaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2100  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 2136

<210> 303  
 <211> 247  
 <212> PRT  
 <213> Homo sapiens

<400> 303

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Gly | Ala | Ala | Val | Phe | Phe | Gly | Cys | Thr | Phe | Val | Ala | Phe | Gly | 1   | 5   | 10  | 15 |
| Pro | Ala | Phe | Ala | Leu | Phe | Leu | Ile | Thr | Val | Ala | Gly | Asp | Pro | Leu | 20  | 25  | 30  |    |
| Arg | Val | Ile | Ile | Leu | Val | Ala | Gly | Ala | Phe | Phe | Trp | Leu | Val | Ser | 35  | 40  | 45  |    |
| Leu | Leu | Leu | Ala | Ser | Val | Val | Trp | Phe | Ile | Leu | Val | His | Val | Thr | 50  | 55  | 60  |    |
| Asp | Arg | Ser | Asp | Ala | Arg | Leu | Gln | Tyr | Gly | Leu | Leu | Ile | Phe | Gly | 65  | 70  | 75  |    |
| Ala | Ala | Val | Ser | Val | Leu | Leu | Gln | Glu | Val | Phe | Arg | Phe | Ala | Tyr | 80  | 85  | 90  |    |
| Tyr | Lys | Leu | Leu | Lys | Lys | Ala | Asp | Glu | Gly | Leu | Ala | Ser | Leu | Ser | 95  | 100 | 105 |    |
| Glu | Asp | Gly | Arg | Ser | Pro | Ile | Ser | Ile | Arg | Gln | Met | Ala | Tyr | Val | 110 | 115 | 120 |    |
| Ser | Gly | Leu | Ser | Phe | Gly | Ile | Ile | Ser | Gly | Val | Phe | Ser | Val | Ile | 125 | 130 | 135 |    |
| Asn | Ile | Leu | Ala | Asp | Ala | Leu | Gly | Pro | Gly | Val | Val | Gly | Ile | His | 140 | 145 | 150 |    |
| Gly | Asp | Ser | Pro | Tyr | Tyr | Phe | Leu | Thr | Ser | Ala | Phe | Leu | Thr | Ala | 155 | 160 | 165 |    |
| Ala | Ile | Ile | Leu | Leu | His | Thr | Phe | Trp | Gly | Val | Val | Phe | Phe | Asp | 170 | 175 | 180 |    |
| Ala | Cys | Glu | Arg | Arg | Arg | Tyr | Trp | Ala | Leu | Gly | Leu | Val | Val | Gly | 185 | 190 | 195 |    |
| Ser | His | Leu | Leu | Thr | Ser | Gly | Leu | Thr | Phe | Leu | Asn | Pro | Trp | Tyr | 200 | 205 | 210 |    |
| Glu | Ala | Ser | Leu | Leu | Pro | Ile | Tyr | Ala | Val | Thr | Val | Ser | Met | Gly | 215 | 220 | 225 |    |
| Leu | Trp | Ala | Phe | Ile | Thr | Ala | Gly | Gly | Ser | Leu | Arg | Ser | Ile | Gln | 230 | 235 | 240 |    |
| Arg | Ser | Leu | Leu | Cys | Lys | Asp | 245 |     |     |     |     |     |     |     |     |     |     |    |

<210> 304  
 <211> 240  
 <212> DNA  
 <213> Homo sapiens

<220>

<221> unsure  
<222> 108, 123, 126, 154, 198, 206, 217  
<223> unknown base

<400> 304  
aagctggttt aaggaagcag aggagggtta gattcgttga gtgaggacgg 50  
aagatcaacc catttccatt ccgccagatg gcctatgttt ctggtctctc 100  
ccttcggnat catcagtggg gtnttntctg ttatcaatat tttggctgat 150  
gcanttgggc caggtgtggg tgggatccat ggagactcac cctattantt 200  
cctganittca gcctttntga cagcagccat tatcctgctc 240

<210> 305  
<211> 378  
<212> DNA  
<213> Homo sapiens

<220>  
<221> unsure  
<222> 58, 94, 132, 186, 191, 220, 240, 248, 280, 311, 332  
<223> unknown base

<400> 305  
gaccgaccgt tcagatgccg ggttccagta cggcttcctg atttttggtg 50  
ctgctgtntc tgtccttcta caggaggtgt tccgctttgc ctantacaag 100  
ctgcttaaga aggcagatga ggggttagca tngctgagtg aggacggaag 150  
atcaccatt tccatccgcc agatggccta tgttnttggg ntttccttcg 200  
gtatcatcag tgggtgtttt tctgttatca atattttggn tgatgcantt 250  
gggccagggtg tgggtgggat ccatggagan tcacctatt aattcctgaa 300  
ttcagccttt ntgacagcag ccattatcct gntccatacc ttttggggag 350  
ttgtgttttt tgatgcctgt gagaggag 378

<210> 306  
<211> 655  
<212> DNA  
<213> Homo sapiens

<220>  
<221> unsure  
<222> 1, 22, 129, 133, 184  
<223> unknown base

<400> 306  
ngttggagaa gtggcgcgga cnttcatttg gggtttcggt ttccccctt 50  
tccctttccc cggggtctgg ggtgacattg cacgggcccc tcgtggggtc 100  
gcgttgccac cccacgcgga ctccccagnt gngcgccct tcccatttgc 150  
ctgtcctggg caggccccca ccccccttcc cacntgacca gccatggggg 200  
ctgcggtgtt tttcggctgc actttcgtcg cgttcggccc ggccttcgcg 250

cttttcttga tcaactgtggc tggggacccg ctctcggtta tcatacctgg 300  
 cgcaggggca tttttctggc tgggtctccct gctcctggcc tctgtggtct 350  
 ggttcatctt ggtccatgtg accgaccggt cagatgcccg gctccagtac 400  
 ggcctcctga tttttgggtg tgctgtctct gtccttctac aggaggtgtt 450  
 ccgctttgcc tactacaagc tgcttaagaa ggcagatgag gggtttagcat 500  
 cgctgagtga ggacggaaga tcacccatct ccatccgcc gatggcctat 550  
 gtttctggtc tctccttcgg tatcatcagt ggtgtcttct ctgttatcaa 600  
 tattttggct gatgcactt ggccaggtgt ggttgggatc catggagact 650  
 ccccc 655

<210> 307  
 <211> 650  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> unsure  
 <222> 52, 89, 128  
 <223> unknown base

<400> 307  
 gtaaaagaaa gtggccggac cttcattggg gtttcggttc ccccctttcc 50  
 cnttccccgg ggtctggggg tgacattgca ccgcgccct cgtgggggtcg 100  
 cgttgccacc ccacgccgac tccccagntg gcgcgccct cccatttgcc 150  
 tgtcctggtc agggcccccac cccccttccc acctgaccag ccatgggggc 200  
 tgcgggtgttt ttogggtgc actttcgtcg cgttcggggc cggccttcgc 250  
 gcttttcttg atcaactgtg ctggggaccc gcttcgcgtt atcatcctgg 300  
 tcgcaggggc atttttctgg ctgggtctcc tgctcctggc ctctgtggtc 350  
 tggttcatct tgggtccatgt gaccgaccgg tcagatgcc ggctccagta 400  
 cggcctcctg atttttgggt ctgctgtctc tgccttcta caggaggtgt 450  
 tccgctttgc ctactacaag ctgcttaaga aggcagatga ggggttagca 500  
 tcgctgagtg aggacggaag atcacccatc tccatccgcc agatggccta 550  
 tgtttctggc ctctccttcg gtatcatcag tgggtgtctt tctgttatca 600  
 atattttggc tgatgcactt gggccaggtg tggttgggat ccatggagac 650

<210> 308  
 <211> 1570  
 <212> DNA  
 <213> Homo sapiens

<400> 308  
 gccccaggga gcagtgggtg gttataactc agggccgggtg cccagagccc 50



aggaggaggc agtggccagg aaggcacagg cctgagaagt ctgcggtga 100  
gctgggagca aatccccac cccctacctg ggggacaggg caagtgagac 150  
ctggtgaggg tggctcagca ggcaggaag gagaggtgtc tgtgcgtcct 200  
gcacccacat ctttctctgt cccctccttg ccctgtctgg aggtgtctag 250  
actcctatct tctgaattct atagtgcctg ggtctcagcg cagtgccgat 300  
gggtggccgt ccttgtggtt cctctctacc tggggaaata aggtgcagcg 350  
gccatggcta cagcaagacc cccctggatg tgggtgctct gtgctctgat 400  
cacagccttg cttctggggg tcacagagca tgttctcgcc aacaatgatg 450  
tttctgtga ccacccctct aacaccgtgc cctctgggag caaccaggac 500  
ctgggagctg gggccgggga agacgcccgg tcggatgaca gcagcagccg 550  
catcatcaat ggatccgact gcgatatgca caccagccg tggcaggccg 600  
cgctgttgct aaggcccaac cagctctact gcggggcggt gttggtgcat 650  
ccacagtggc tgctcacggc cgcccactgc aggaagaaag ttttcagagt 700  
ccgtctcggc cactactccc tgtcaccagt ttatgaatct gggcagcaga 750  
tgttccaggg ggtcaaatcc atccccacc ctggctactc ccaccctggc 800  
cactctaacg acctcatgct catcaaactg aacagaagaa ttcgtccac 850  
taaagatgtc agaccatca acgtctctc tcattgtccc tctgctggga 900  
caaagtgctt ggtgtctggc tgggggacaa ccaagagccc ccaagtgcac 950  
ttccctaagg tcctccagtg cttgaatata agcgtgctaa gtcagaaaag 1000  
gtgagaggat gcttaccoga gacagataga tgacaccatg ttctgcgccg 1050  
gtgacaaaagc aggtagagac tcctgccagg gtgattctgg ggggcctgtg 1100  
gtctgcaatg gctccctgca gggactcgtg tcctggggag attacccttg 1150  
tgcccgccc aacagaccgg gtgtctacac gaacctctgc aagttcacca 1200  
agtggatcca ggaaaccatc caggccaact cctgagtcac cccaggactc 1250  
agcacaccgg catccccacc tgctgcaggg acagccctga cactccttc 1300  
agaccctcat tccttcccag agatgttgag aatgttcac tctccagccc 1350  
ctgaccccat gtctcctgga ctcagggtct gcttcccca cattgggctg 1400  
accgtgtctc tctagttgaa ccctgggaac aatttccaaa actgtccagg 1450  
gcgggggttg cgtctcaatc tccctggggc actttcatcc tcaagctcag 1500  
ggcccatccc ttctctgcag ctctgaccca aatttagtcc cagaaataaa 1550  
ctgagaagtg gaaaaaaaaa 1570

<210> 309

<211> 293  
 <212> PRT  
 <213> Homo sapiens

<400> 309

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Ala | Thr | Ala | Arg | Pro | Pro | Trp | Met | Trp | Val | Leu | Cys | Ala | Leu | 1   | 5   | 10  | 15 |
| Ile | Thr | Ala | Leu | Leu | Leu | Gly | Val | Thr | Glu | His | Val | Leu | Ala | Asn | 20  | 25  | 30  |    |
| Asn | Asp | Val | Ser | Cys | Asp | His | Pro | Ser | Asn | Thr | Val | Pro | Ser | Gly | 35  | 40  | 45  |    |
| Ser | Asn | Gln | Asp | Leu | Gly | Ala | Gly | Ala | Gly | Glu | Asp | Ala | Arg | Ser | 50  | 55  | 60  |    |
| Asp | Asp | Ser | Ser | Ser | Arg | Ile | Ile | Asn | Gly | Ser | Asp | Cys | Asp | Met | 65  | 70  | 75  |    |
| His | Thr | Gln | Pro | Trp | Gln | Ala | Ala | Leu | Leu | Leu | Arg | Pro | Asn | Gln | 80  | 85  | 90  |    |
| Leu | Tyr | Cys | Gly | Ala | Val | Leu | Val | His | Pro | Gln | Trp | Leu | Leu | Thr | 95  | 100 | 105 |    |
| Ala | Ala | His | Cys | Arg | Lys | Lys | Val | Phe | Arg | Val | Arg | Leu | Gly | His | 110 | 115 | 120 |    |
| Tyr | Ser | Leu | Ser | Pro | Val | Tyr | Glu | Ser | Gly | Gln | Gln | Met | Phe | Gln | 125 | 130 | 135 |    |
| Gly | Val | Lys | Ser | Ile | Pro | His | Pro | Gly | Tyr | Ser | His | Pro | Gly | His | 140 | 145 | 150 |    |
| Ser | Asn | Asp | Leu | Met | Leu | Ile | Lys | Leu | Asn | Arg | Arg | Ile | Arg | Pro | 155 | 160 | 165 |    |
| Thr | Lys | Asp | Val | Arg | Pro | Ile | Asn | Val | Ser | Ser | His | Cys | Pro | Ser | 170 | 175 | 180 |    |
| Ala | Gly | Thr | Lys | Cys | Leu | Val | Ser | Gly | Trp | Gly | Thr | Thr | Lys | Ser | 185 | 190 | 195 |    |
| Pro | Gln | Val | His | Phe | Pro | Lys | Val | Leu | Gln | Cys | Leu | Asn | Ile | Ser | 200 | 205 | 210 |    |
| Val | Leu | Ser | Gln | Lys | Arg | Cys | Glu | Asp | Ala | Tyr | Pro | Arg | Gln | Ile | 215 | 220 | 225 |    |
| Asp | Asp | Thr | Met | Phe | Cys | Ala | Gly | Asp | Lys | Ala | Gly | Arg | Asp | Ser | 230 | 235 | 240 |    |
| Cys | Gln | Gly | Asp | Ser | Gly | Gly | Pro | Val | Val | Cys | Asn | Gly | Ser | Leu | 245 | 250 | 255 |    |
| Gln | Gly | Leu | Val | Ser | Trp | Gly | Asp | Tyr | Pro | Cys | Ala | Arg | Pro | Asn | 260 | 265 | 270 |    |
| Arg | Pro | Gly | Val | Tyr | Thr | Asn | Leu | Cys | Lys | Phe | Thr | Lys | Trp | Ile | 275 | 280 | 285 |    |
| Gln | Glu | Thr | Ile | Gln | Ala | Asn | Ser |     |     |     |     |     |     |     |     |     |     |    |

<210> .310  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 310  
 tcctgtgacc acccctctaa cacc 24

<210> 311  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 311  
 ctggaacatc tgctgccag attc 24

<210> 312  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 312  
 gtcgatgac agcagcagcc gcatcatcaa tggatccgac tgcgatatgc 50

<210> 313  
 <211> 3010  
 <212> DNA  
 <213> Homo sapiens

<400> 313  
 atggtcaacg accggtggaa gaccatgggc ggcgctgccc aacttgagga 50  
 ccggccgcgc gacaagccgc agcggccgag ctgcggctac gtgctgtgca 100  
 ccgtgctgct ggccctggct gtgctgctgg ctgtagctgt caccggtgcc 150  
 gtgctcttcc tgaaccacgc ccacgcgccg ggcacggcgc cccacctgt 200  
 cgtcagcact ggggctgcca gcgccaacag cgccctggtc actgtggaaa 250  
 gggcggacag ctgcacctc agcatcctca ttgaccgcg ctgccccgac 300  
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<210> 314

<211> 461

<212> PRT

<213> Homo sapiens

<400> 314

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Val | Asn | Asp | Arg | Trp | Lys | Thr | Met | Gly | Gly | Ala | Ala | Gln | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Glu | Asp | Arg | Pro | Arg | Asp | Lys | Pro | Gln | Arg | Pro | Ser | Cys | Gly | Tyr |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Val | Leu | Cys | Thr | Val | Leu | Leu | Ala | Leu | Ala | Val | Leu | Leu | Ala | Val |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Ala | Val | Thr | Gly | Ala | Val | Leu | Phe | Leu | Asn | His | Ala | His | Ala | Pro |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Gly | Thr | Ala | Pro | Pro | Pro | Val | Val | Ser | Thr | Gly | Ala | Ala | Ser | Ala |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Asn | Ser | Ala | Leu | Val | Thr | Val | Glu | Arg | Ala | Asp | Ser | Ser | His | Leu |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ser | Ile | Leu | Ile | Asp | Pro | Arg | Cys | Pro | Asp | Leu | Thr | Asp | Ser | Phe |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |

|                     |                 |                         |     |     |     |
|---------------------|-----------------|-------------------------|-----|-----|-----|
| Ala Arg Leu Glu Ser | Ala Gln Ala Ser | Val Leu Gln Ala Leu Thr | 110 | 115 | 120 |
| Glu His Gln Ala Gln | Pro Arg Leu Val | Gly Asp Gln Glu Gln Glu | 125 | 130 | 135 |
| Leu Leu Asp Thr Leu | Ala Asp Gln Leu | Pro Arg Leu Leu Ala Arg | 140 | 145 | 150 |
| Ala Ser Glu Leu Gln | Thr Glu Cys Met | Gly Leu Arg Lys Gly His | 155 | 160 | 165 |
| Gly Thr Leu Gly Gln | Gly Leu Ser Ala | Leu Gln Ser Glu Gln Gly | 170 | 175 | 180 |
| Arg Leu Ile Gln Leu | Leu Ser Glu Ser | Gln Gly His Met Ala His | 185 | 190 | 195 |
| Leu Val Asn Ser Val | Ser Asp Ile Leu | Asp Ala Leu Gln Arg Asp | 200 | 205 | 210 |
| Arg Gly Leu Gly Arg | Pro Arg Asn Lys | Ala Asp Leu Gln Arg Ala | 215 | 220 | 225 |
| Pro Ala Arg Gly Thr | Arg Pro Arg Gly | Cys Ala Thr Gly Ser Arg | 230 | 235 | 240 |
| Pro Arg Asp Cys Leu | Asp Val Leu Leu | Ser Gly Gln Gln Asp Asp | 245 | 250 | 255 |
| Gly Val Tyr Ser Val | Phe Pro Thr His | Tyr Pro Ala Gly Phe Gln | 260 | 265 | 270 |
| Val Tyr Cys Asp Met | Arg Thr Asp Gly | Gly Gly Trp Thr Val Phe | 275 | 280 | 285 |
| Gln Arg Arg Glu Asp | Gly Ser Val Asn | Phe Phe Arg Gly Trp Asp | 290 | 295 | 300 |
| Ala Tyr Arg Asp Gly | Phe Gly Arg Leu | Thr Gly Glu His Trp Leu | 305 | 310 | 315 |
| Gly Leu Lys Arg Ile | His Ala Leu Thr | Thr Gln Ala Ala Tyr Glu | 320 | 325 | 330 |
| Leu His Val Asp Leu | Glu Asp Phe Glu | Asn Gly Thr Ala Tyr Ala | 335 | 340 | 345 |
| Arg Tyr Gly Ser Phe | Gly Val Gly Leu | Phe Ser Val Asp Pro Glu | 350 | 355 | 360 |
| Glu Asp Gly Tyr Pro | Leu Thr Val Ala | Asp Tyr Ser Gly Thr Ala | 365 | 370 | 375 |
| Gly Asp Ser Leu Leu | Lys His Ser Gly | Met Arg Phe Thr Thr Lys | 380 | 385 | 390 |
| Asp Arg Asp Ser Asp | His Ser Glu Asn | Asn Cys Ala Ala Phe Tyr | 395 | 400 | 405 |
| Arg Gly Ala Trp Trp | Tyr Arg Asn Cys | His Thr Ser Asn Leu Asn | 410 | 415 | 420 |

Gly Gln Tyr Leu Arg Gly Ala His Ala Ser Tyr Ala Asp Gly Val  
425 430 435

Glu Trp Ser Ser Trp Thr Gly Trp Gln Tyr Ser Leu Lys Phe Ser  
440 445 450

Glu Met Lys Ile Arg Pro Val Arg Glu Asp Arg  
455 460

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<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 315  
cacacgtcca acctcaatgg gcag 24

<210> 316  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 316  
gaccagcagg gccaaggaca agg 23

<210> 317  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 317  
gttctctgag atgaagatcc ggccggtccg ggagtaccgc ttag 44

<210> 318  
<211> 1841  
<212> DNA  
<213> Homo sapiens

<400> 318  
gcagtcagag acttccccctg cccctcgtg ggaaagaaca ttaggaatgc 50  
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ggcaatccga ccacatttca ctctaccgc tgtaggaatc cagatgcagg 150  
ccaagtacag cagcacgagg gacatgctgg atgatgatgg ggacaccacc 200  
atgagcctgc attctcaagc ctctgccaca actcggcatc cagagccccg 250  
gcgcacagag cacagggtc cctcttcaac gtggcgacca gtggccctga 300  
ccctgctgac tttgtgcttg gtgctgctga tagggctggc agccctgggg 350  
cttttgtttt ttcagtacta ccagctctcc aatactggtc aagacaccat 400

ttctcaaagt gaagaaagat taggaaatac gtcccaagag ttgcaatctc 450  
 ttcaagtcca gaatataaag cttgcaggaa gtctgcagca tgtggctgaa 500  
 aaactctgtc gtgagctgta taacaaagct ggagcacaca ggtgcagccc 550  
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 aagacagcaa aagttgggag gactgtaaat atttctgcct tagtgaaaac 650  
 tctaccatgc tgaagataaa caaacaagaa gacctggaat ttgccgcgtc 700  
 tcagagctac tctgagtttt tctactctta ttggacaggg cttttgcgcc 750  
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 gaactgttcc atattataat agatgtcacc agccaagaa gcagagactg 850  
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 ctacaaatag cagagtgagc caggcgggtgc caaagcaagg gctagttgag 1050  
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 aaaatgggtt ctctgttttc ctgttcaggaa tcaccagcat ttctgagctt 1150  
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 caaccaacct cagaaaccca taatgtcatc tgccttcttg gcttagagat 1250  
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<210> 319  
 <211> 280  
 <212> PRT  
 <213> Homo sapiens



<400> 319

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Gly Asp Thr Thr Met Ser Leu His Ser Gln Ala Ser Ala Thr Thr  
20 25 30

Arg His Pro Glu Pro Arg Arg Thr Glu His Arg Ala Pro Ser Ser  
35 40 45

Thr Trp Arg Pro Val Ala Leu Thr Leu Leu Thr Leu Cys Leu Val  
50 55 60

Leu Leu Ile Gly Leu Ala Ala Leu Gly Leu Leu Phe Phe Gln Tyr  
65 70 75

Tyr Gln Leu Ser Asn Thr Gly Gln Asp Thr Ile Ser Gln Met Glu  
80 85 90

Glu Arg Leu Gly Asn Thr Ser Gln Glu Leu Gln Ser Leu Gln Val  
95 100 105

Gln Asn Ile Lys Leu Ala Gly Ser Leu Gln His Val Ala Glu Lys  
110 115 120

Leu Cys Arg Glu Leu Tyr Asn Lys Ala Gly Ala His Arg Cys Ser  
125 130 135

Pro Cys Thr Glu Gln Trp Lys Trp His Gly Asp Asn Cys Tyr Gln  
140 145 150

Phe Tyr Lys Asp Ser Lys Ser Trp Glu Asp Cys Lys Tyr Phe Cys  
155 160 165

Leu Ser Glu Asn Ser Thr Met Leu Lys Ile Asn Lys Gln Glu Asp  
170 175 180

Leu Glu Phe Ala Ala Ser Gln Ser Tyr Ser Glu Phe Phe Tyr Ser  
185 190 195

Tyr Trp Thr Gly Leu Leu Arg Pro Asp Ser Gly Lys Ala Trp Leu  
200 205 210

Trp Met Asp Gly Thr Pro Phe Thr Ser Glu Leu Phe His Ile Ile  
215 220 225

Ile Asp Val Thr Ser Pro Arg Ser Arg Asp Cys Val Ala Ile Leu  
230 235 240

Asn Gly Met Ile Phe Ser Lys Asp Cys Lys Glu Leu Lys Arg Cys  
245 250 255

Val Cys Glu Arg Arg Ala Gly Met Val Lys Pro Glu Ser Leu His  
260 265 270

Val Pro Pro Glu Thr Leu Gly Glu Gly Asp  
275 280

<210> 320

<211> 468

<212> DNA

<213> Homo sapiens

<220>  
<221> unsure  
<222> 59, 95, 149, 331, 364, 438, 446  
<223> unknown base

<400> 320  
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cttttgccac aattcggcat ccagagcccc ggcgcacaga gcacagggnt 150  
cctttttcaa cgtggcgacc agtggccctg accctgctga ctttgtgctt 200  
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gcttgcagga agtntgcagc atgtggctga aaaactctgt cgtgagctgt 400  
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atacacacac cacttccc 468

<210> 321  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 321  
atgcaggcca agtacagcag cac 23

<210> 322  
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 322  
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<210> 323  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 323  
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<210> 324  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 324  
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<210> 325  
<211> 2988  
<212> DNA  
<213> Homo sapiens

<400> 325  
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cgagctgaac tggaacgcac gtaccaggag atccaggagt tacagtggga 1300



gagctgagga gggggcatct cccaacttct cccttttgga ccctgccgaa 2950

gctccctgcc ttttaataaac tggccaagtg tggaaaaa 2988

<210> 326  
<211> 775  
<212> PRT  
<213> Homo sapiens

<400> 326

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Arg | Ala | Ser | Leu | Leu | Leu | Ser | Val | Leu | Arg | Pro | Ala | Gly | Pro |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |
| Val | Ala | Val | Gly | Ile | Ser | Leu | Gly | Phe | Thr | Leu | Ser | Leu | Leu | Ser |  |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Val | Thr | Trp | Val | Glu | Glu | Pro | Cys | Gly | Pro | Gly | Pro | Pro | Gln | Pro |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Gly | Asp | Ser | Glu | Leu | Pro | Pro | Arg | Gly | Asn | Thr | Asn | Ala | Ala | Arg |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Arg | Pro | Asn | Ser | Val | Gln | Pro | Gly | Ala | Glu | Arg | Glu | Lys | Pro | Gly |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Ala | Gly | Glu | Gly | Ala | Gly | Glu | Asn | Trp | Glu | Pro | Arg | Val | Leu | Pro |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Tyr | His | Pro | Ala | Gln | Pro | Gly | Gln | Ala | Ala | Lys | Lys | Ala | Val | Arg |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Thr | Arg | Tyr | Ile | Ser | Thr | Glu | Leu | Gly | Ile | Arg | Gln | Arg | Leu | Leu |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Val | Ala | Val | Leu | Thr | Ser | Gln | Thr | Thr | Leu | Pro | Thr | Leu | Gly | Val |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Ala | Val | Asn | Arg | Thr | Leu | Gly | His | Arg | Leu | Glu | Arg | Val | Val | Phe |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Leu | Thr | Gly | Ala | Arg | Gly | Arg | Arg | Ala | Pro | Pro | Gly | Met | Ala | Val |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Val | Thr | Leu | Gly | Glu | Glu | Arg | Pro | Ile | Gly | His | Leu | His | Leu | Ala |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Leu | Arg | His | Leu | Leu | Glu | Gln | His | Gly | Asp | Asp | Phe | Asp | Trp | Phe |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Phe | Leu | Val | Pro | Asp | Thr | Thr | Tyr | Thr | Glu | Ala | His | Gly | Leu | Ala |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Arg | Leu | Thr | Gly | His | Leu | Ser | Leu | Ala | Ser | Ala | Ala | His | Leu | Tyr |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Leu | Gly | Arg | Pro | Gln | Asp | Phe | Ile | Gly | Gly | Glu | Pro | Thr | Pro | Gly |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Arg | Tyr | Cys | His | Gly | Gly | Phe | Gly | Val | Leu | Leu | Ser | Arg | Met | Leu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Leu | Gln | Gln | Leu | Arg | Pro | His | Leu | Glu | Gly | Cys | Arg | Asn | Asp | Ile |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Val | Gln | Thr | Ala | Ala | Pro | Ser | Pro | Leu | Arg | Leu | Met | Asp | Leu |
|     |     |     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |
| Leu | Ser | Lys | Lys | His | Pro | Leu | Asp | Thr | Leu | Phe | Leu | Leu | Ala | Gly |
|     |     |     |     | 605 |     |     |     |     | 610 |     |     |     |     | 615 |
| Pro | Asp | Thr | Val | Leu | Thr | Pro | Asp | Phe | Leu | Asn | Arg | Cys | Arg | Met |
|     |     |     |     | 620 |     |     |     |     | 625 |     |     |     |     | 630 |
| His | Ala | Ile | Ser | Gly | Trp | Gln | Ala | Phe | Phe | Pro | Met | His | Phe | Gln |
|     |     |     |     | 635 |     |     |     |     | 640 |     |     |     |     | 645 |
| Ala | Phe | His | Pro | Gly | Val | Ala | Pro | Pro | Gln | Gly | Pro | Gly | Pro | Pro |
|     |     |     |     | 650 |     |     |     |     | 655 |     |     |     |     | 660 |
| Glu | Leu | Gly | Arg | Asp | Thr | Gly | Arg | Phe | Asp | Arg | Gln | Ala | Ala | Ser |
|     |     |     |     | 665 |     |     |     |     | 670 |     |     |     |     | 675 |
| Glu | Ala | Cys | Phe | Tyr | Asn | Ser | Asp | Tyr | Val | Ala | Ala | Arg | Gly | Arg |
|     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |     | 690 |
| Leu | Ala | Ala | Ala | Ser | Glu | Gln | Glu | Glu | Glu | Leu | Leu | Glu | Ser | Leu |
|     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     | 705 |
| Asp | Val | Tyr | Glu | Leu | Phe | Leu | His | Phe | Ser | Ser | Leu | His | Val | Leu |
|     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
| Arg | Ala | Val | Glu | Pro | Ala | Leu | Leu | Gln | Arg | Tyr | Arg | Ala | Gln | Thr |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |
| Cys | Ser | Ala | Arg | Leu | Ser | Glu | Asp | Leu | Tyr | His | Arg | Cys | Leu | Gln |
|     |     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |
| Ser | Val | Leu | Glu | Gly | Leu | Gly | Ser | Arg | Thr | Gln | Leu | Ala | Met | Leu |
|     |     |     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |
| Leu | Phe | Glu | Gln | Glu | Gln | Gly | Asn | Ser | Thr |     |     |     |     |     |
|     |     |     |     | 770 |     |     |     |     | 775 |     |     |     |     |     |

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<213> Artificial Sequence

<220>

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atggctcagt gtgcagacag 20

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<210> 333  
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gctttttaga agcttgattt cctttgaaga tgaaagacta gcggaagctc 200  
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ccatcaataa gaaattttctc agcctggccg aaaatggttg gccccacgaa 350  
gccacgacaa ctggaggcaa agagggttgc tcaacgcccc gcctcattgg 400





| Geographical location |                |
|-----------------------|----------------|
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| 4                     | 100° 00' 00" E |
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| 6                     | 100° 00' 00" E |
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aggactgtgg tcgccccgtc cgctgtggcg ggaaagcggc cccagaacc 150
gaccacaccg tggcaagagg acccagaacc cgaggacgaa aacttgtatg 200
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tggaacatgc gacttgtctt cttctttggc gtctccatca tcctggtcct 300
tggcagcacc tttgtggcct atctgoc tga ctacaggatg aaagagtgg 350
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<223> Synthetic oligonucleotide probe

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<212> DNA
<213> Artificial Sequence
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<400> 337
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<220>  
<223> Synthetic oligonucleotide probe

|       |      |
|-------|------|
| <210> | 339  |
| <211> | 2162 |
| <212> | DNA  |

<213> Homo sapiens

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<212> PRT  
<213> Homo sapiens

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Trp Cys Leu Ala Glu Pro Pro Arg Asp Ser Leu Arg Glu Glu Leu  
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Val Ile Thr Pro Leu Pro Ser Gly Asp Val Ala Ala Thr Phe Gln  
35 40 45  
Phe Arg Thr Arg Trp Asp Ser Glu Leu Gln Arg Glu Gly Val Ser  
50 55 60  
His Tyr Arg Leu Phe Pro Lys Ala Leu Gly Gln Leu Ile Ser Lys  
65 70 75  
Tyr Ser Leu Arg Glu Leu His Leu Ser Phe Thr Gln Gly Phe Trp  
80 85 90  
Arg Thr Arg Tyr Trp Gly Pro Pro Phe Leu Gln Ala Pro Ser Gly  
95 100 105  
Ala Glu Leu Trp Val Trp Phe Gln Asp Thr Val Thr Asp Val Asp  
110 115 120  
Lys Ser Trp Lys Glu Leu Ser Asn Val Leu Ser Gly Ile Phe Cys  
125 130 135  
Ala Ser Leu Asn Phe Ile Asp Ser Thr Asn Thr Val Thr Pro Thr  
140 145 150

|                 |                     |                         |     |     |     |
|-----------------|---------------------|-------------------------|-----|-----|-----|
| Ala Ser Phe Lys | Pro Leu Gly Leu Ala | Asn Asp Thr Asp His Tyr | 155 | 160 | 165 |
| Phe Leu Arg Tyr | Ala Val Leu Pro Arg | Glu Val Val Cys Thr Glu | 170 | 175 | 180 |
| Asn Leu Thr Pro | Trp Lys Lys Leu Leu | Pro Cys Ser Ser Lys Ala | 185 | 190 | 195 |
| Gly Leu Ser Val | Leu Leu Lys Ala Asp | Arg Leu Phe His Thr Ser | 200 | 205 | 210 |
| Tyr His Ser Gln | Ala Val His Ile Arg | Pro Val Cys Arg Asn Ala | 215 | 220 | 225 |
| Arg Cys Thr Ser | Ile Ser Trp Glu Leu | Arg Gln Thr Leu Ser Val | 230 | 235 | 240 |
| Val Phe Asp Ala | Phe Ile Thr Gly Gln | Gly Lys Lys Asp Trp Ser | 245 | 250 | 255 |
| Leu Phe Arg Met | Phe Ser Arg Thr Leu | Thr Glu Pro Cys Pro Leu | 260 | 265 | 270 |
| Ala Ser Glu Ser | Arg Val Tyr Val Asp | Ile Thr Thr Tyr Asn Gln | 275 | 280 | 285 |
| Asp Asn Glu Thr | Leu Glu Val His Pro | Pro Pro Thr Thr Thr Tyr | 290 | 295 | 300 |
| Gln Asp Val Ile | Leu Gly Thr Arg Lys | Thr Tyr Ala Ile Tyr Asp | 305 | 310 | 315 |
| Leu Leu Asp Thr | Ala Met Ile Asn Asn | Ser Arg Asn Leu Asn Ile | 320 | 325 | 330 |
| Gln Leu Lys Trp | Lys Arg Pro Pro Glu | Asn Glu Ala Pro Pro Val | 335 | 340 | 345 |
| Pro Phe Leu His | Ala Gln Arg Tyr Val | Ser Gly Tyr Gly Leu Gln | 350 | 355 | 360 |
| Lys Gly Glu Leu | Ser Thr Leu Leu Tyr | Asn Thr His Pro Tyr Arg | 365 | 370 | 375 |
| Ala Phe Pro Val | Leu Leu Leu Asp Thr | Val Pro Trp Tyr Leu Arg | 380 | 385 | 390 |
| Leu Tyr Val His | Thr Leu Thr Ile Thr | Ser Lys Gly Lys Glu Asn | 395 | 400 | 405 |
| Lys Pro Ser Tyr | Ile His Tyr Gln Pro | Ala Gln Asp Arg Leu Gln | 410 | 415 | 420 |
| Pro His Leu Leu | Glu Met Leu Ile Gln | Leu Pro Ala Asn Ser Val | 425 | 430 | 435 |
| Thr Lys Val Ser | Ile Gln Phe Glu Arg | Ala Leu Leu Lys Trp Thr | 440 | 445 | 450 |
| Glu Tyr Thr Pro | Asp Pro Asn His Gly | Phe Tyr Val Ser Pro Ser | 455 | 460 | 465 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Leu | Ser | Ala | Leu | Val | Pro | Ser | Met | Val | Ala | Ala | Lys | Pro | Val | 470 | 475 | 480 |
| Asp | Trp | Glu | Glu | Ser | Pro | Leu | Phe | Asn | Ser | Leu | Phe | Pro | Val | Ser | 485 | 490 | 495 |
| Asp | Gly | Ser | Asn | Tyr | Phe | Val | Arg | Leu | Tyr | Thr | Glu | Pro | Leu | Leu | 500 | 505 | 510 |
| Val | Asn | Leu | Pro | Thr | Pro | Asp | Phe | Ser | Met | Pro | Tyr | Asn | Val | Ile | 515 | 520 | 525 |
| Cys | Leu | Thr | Cys | Thr | Val | Val | Ala | Val | Cys | Tyr | Gly | Ser | Phe | Tyr | 530 | 535 | 540 |
| Asn | Leu | Leu | Thr | Arg | Thr | Phe | His | Ile | Glu | Glu | Pro | Arg | Thr | Gly | 545 | 550 | 555 |
| Gly | Leu | Ala | Lys | Arg | Leu | Ala | Asn | Leu | Ile | Arg | Arg | Ala | Arg | Gly | 560 | 565 | 570 |

Val Pro Pro Leu

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 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 341  
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<210> 342  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <221> Artificial Sequence  
 <222> 1-24  
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<400> 342  
 ccaactctga ggagagcaag tggc 24

<210> 343  
 <211> 44  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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<210> 344  
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 <211> 111  
 <212> PRT  
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 35 40 45  
 Pro Pro Gln Cys His Thr Asp Gln Asp Cys Leu Gly Glu Arg Lys  
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 Cys Cys Tyr Leu His Cys Gly Phe Lys Cys Val Ile Pro Val Lys  
 65 70 75  
 Glu Leu Glu Glu Gly Gly Asn Lys Asp Glu Asp Val Ser Arg Pro  
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 Tyr Pro Glu Pro Gly Trp Glu Ala Lys Cys Pro Gly Ser Ser Ser  
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 Thr Arg Cys Pro Gln Lys  
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cacgactacg tgttccgatt gagcggagct ctcatataag gctacgaaca 1350  
ggatgtgggg actcggacat ccttctacgg ctttaccgcc ttctccctga 1400  
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| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     |
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| Tyr | Ala | Glu | Pro | Ala | Pro | Glu | Asn | Asn | Ala | Leu | Asn | Thr | Gln | Thr |
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|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Arg | Ala | Ala | Trp | Lys | Ser | Pro | Glu | Lys | Glu | Lys | Thr | Met | Val | Asn |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Thr | Leu | Ser | Pro | Arg | Gly | Gln | Asp | Ala | Gly | Met | Ala | Ser | Gly | Arg |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
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| Gly | Asn | Gly | Gly | Gln | Thr | Arg | Lys | Leu | Thr | Ala | Ser | Arg | Thr | Val |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
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|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
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|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Lys | Ala | Ser | Lys | Ser | Leu | Trp | Leu | Gln | Lys | Leu | Phe | Leu | Pro | Asn |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Leu | Thr | Leu | Phe | Leu | Asp | Ser | Arg | His | Phe | Asn | Gln | Ser | Glu | Trp |
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|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Asn | Tyr | Ser | Leu | Val | Gln | Lys | Val | Val | Thr | Arg | Phe | Pro | Pro | Val |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
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| Arg | Cys | Ile | Thr | Cys | Ala | Val | Val | Gly | Asn | Gly | Gly | Ile | Leu | Asn |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
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|-----------------|---|-----|
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| Lys Asn Leu Phe | Trp Phe Arg His Arg Pro Gln Glu Ala Phe Arg |     |
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| Leu Leu Thr Ala | Leu Gln Leu Cys Asp Gln Val Ser Ala Tyr Gly |     |
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| Leu Glu Arg Glu | Val Trp Lys Arg Leu His Asp Glu Gly Ile Ile |     |
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| Lys | Met | Ser | Thr | Tyr<br>245 | Leu | Val | Ala | Phe | Ile<br>250 | Ile | Ser | Asp | Phe | Glu<br>255 |
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| Ala | Val | Thr | Leu | Leu<br>290 | Glu | Phe | Tyr | Glu | Asp<br>295 | Tyr | Phe | Ser | Ile | Pro<br>300 |
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| Ala | Leu | Leu | Phe | Asp<br>335 | Ala | Glu | Lys | Ser | Ser<br>340 | Ala | Ser | Ser | Lys | Leu<br>345 |
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| Gly | Asn | Leu | Val | Thr<br>365 | Met | Glu | Trp | Trp | Asn<br>370 | Asp | Leu | Trp | Leu | Asn<br>375 |
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| His | Pro | Glu | Leu | Lys<br>395 | Val | Gly | Asp | Tyr | Phe<br>400 | Phe | Gly | Lys | Cys | Phe<br>405 |
| Asp | Ala | Met | Glu | Val<br>410 | Asp | Ala | Leu | Asn | Ser<br>415 | Ser | His | Pro | Val | Ser<br>420 |
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| Val | Ser | Tyr | Asp | Lys<br>440 | Gly | Ala | Cys | Ile | Leu<br>445 | Asn | Met | Leu | Arg | Glu<br>450 |
| Tyr | Leu | Ser | Ala | Asp<br>455 | Ala | Phe | Lys | Ser | Gly<br>460 | Ile | Val | Gln | Tyr | Leu<br>465 |
| Gln | Lys | His | Ser | Tyr<br>470 | Lys | Asn | Thr | Lys | Asn<br>475 | Glu | Asp | Leu | Trp | Asp<br>480 |
| Ser | Met | Ala | Ser | Ile<br>485 | Cys | Pro | Thr | Asp | Gly<br>490 | Val | Lys | Gly | Met | Asp<br>495 |
| Gly | Phe | Cys | Ser | Arg<br>500 | Ser | Gln | His | Ser | Ser<br>505 | Ser | Ser | Ser | His | Trp<br>510 |
| His | Gln | Glu | Gly | Val<br>515 | Asp | Val | Lys | Thr | Met<br>520 | Met | Asn | Thr | Trp | Thr<br>525 |
| Leu | Gln | Arg | Gly | Phe        | Pro | Leu | Ile | Thr | Ile        | Thr | Val | Arg | Gly | Arg        |

| 530 |     |     |     |     |     |     |     |     |     | 535 |     |     |     |     | 540 |  |  |  |  |
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| Asn | Val | His | Met | Lys | Gln | Glu | His | Tyr | Met | Lys | Gly | Ser | Asp | Gly |     |  |  |  |  |
|     |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |  |  |  |  |
| Ala | Pro | Asp | Thr | Gly | Tyr | Leu | Trp | His | Val | Pro | Leu | Thr | Phe | Ile |     |  |  |  |  |
|     |     |     |     | 560 |     |     |     |     | 565 |     |     |     |     | 570 |     |  |  |  |  |
| Thr | Ser | Lys | Ser | Asn | Met | Val | His | Arg | Phe | Leu | Leu | Lys | Thr | Lys |     |  |  |  |  |
|     |     |     |     | 575 |     |     |     |     | 580 |     |     |     |     | 585 |     |  |  |  |  |
| Thr | Asp | Val | Leu | Ile | Leu | Pro | Glu | Glu | Val | Glu | Trp | Ile | Lys | Phe |     |  |  |  |  |
|     |     |     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |     |  |  |  |  |
| Asn | Val | Gly | Met | Asn | Gly | Tyr | Tyr | Ile | Val | His | Tyr | Glu | Asp | Asp |     |  |  |  |  |
|     |     |     |     | 605 |     |     |     |     | 610 |     |     |     |     | 615 |     |  |  |  |  |
| Gly | Trp | Asp | Ser | Leu | Thr | Gly | Leu | Leu | Lys | Gly | Thr | His | Thr | Ala |     |  |  |  |  |
|     |     |     |     | 620 |     |     |     |     | 625 |     |     |     |     | 630 |     |  |  |  |  |
| Val | Ser | Ser | Asn | Asp | Arg | Ala | Ser | Leu | Ile | Asn | Asn | Ala | Phe | Gln |     |  |  |  |  |
|     |     |     |     | 635 |     |     |     |     | 640 |     |     |     |     | 645 |     |  |  |  |  |
| Leu | Val | Ser | Ile | Gly | Lys | Leu | Ser | Ile | Glu | Lys | Ala | Leu | Asp | Leu |     |  |  |  |  |
|     |     |     |     | 650 |     |     |     |     | 655 |     |     |     |     | 660 |     |  |  |  |  |
| Ser | Leu | Tyr | Leu | Lys | His | Glu | Thr | Glu | Ile | Met | Pro | Val | Phe | Gln |     |  |  |  |  |
|     |     |     |     | 665 |     |     |     |     | 670 |     |     |     |     | 675 |     |  |  |  |  |
| Gly | Leu | Asn | Glu | Leu | Ile | Pro | Met | Tyr | Lys | Leu | Met | Glu | Lys | Arg |     |  |  |  |  |
|     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |     | 690 |     |  |  |  |  |
| Asp | Met | Asn | Glu | Val | Glu | Thr | Gln | Phe | Lys | Ala | Phe | Leu | Ile | Arg |     |  |  |  |  |
|     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     | 705 |     |  |  |  |  |
| Leu | Leu | Arg | Asp | Leu | Ile | Asp | Lys | Gln | Thr | Trp | Thr | Asp | Glu | Gly |     |  |  |  |  |
|     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |     |  |  |  |  |
| Ser | Val | Ser | Glu | Gln | Met | Leu | Arg | Ser | Glu | Leu | Leu | Leu | Leu | Ala |     |  |  |  |  |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |     |  |  |  |  |
| Cys | Val | His | Asn | Tyr | Gln | Pro | Cys | Val | Gln | Arg | Ala | Glu | Gly | Tyr |     |  |  |  |  |
|     |     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |     |  |  |  |  |
| Phe | Arg | Lys | Trp | Lys | Glu | Ser | Asn | Gly | Asn | Leu | Ser | Leu | Pro | Val |     |  |  |  |  |
|     |     |     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |     |  |  |  |  |
| Asp | Val | Thr | Leu | Ala | Val | Phe | Ala | Val | Gly | Ala | Gln | Ser | Thr | Glu |     |  |  |  |  |
|     |     |     |     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |     |  |  |  |  |
| Gly | Trp | Asp | Phe | Leu | Tyr | Ser | Lys | Tyr | Gln | Phe | Ser | Leu | Ser | Ser |     |  |  |  |  |
|     |     |     |     | 785 |     |     |     |     | 790 |     |     |     |     | 795 |     |  |  |  |  |
| Thr | Glu | Lys | Ser | Gln | Ile | Glu | Phe | Ala | Leu | Cys | Arg | Thr | Gln | Asn |     |  |  |  |  |
|     |     |     |     | 800 |     |     |     |     | 805 |     |     |     |     | 810 |     |  |  |  |  |
| Lys | Glu | Lys | Leu | Gln | Trp | Leu | Leu | Asp | Glu | Ser | Phe | Lys | Gly | Asp |     |  |  |  |  |
|     |     |     |     | 815 |     |     |     |     | 820 |     |     |     |     | 825 |     |  |  |  |  |
| Lys | Ile | Lys | Thr | Gln | Glu | Phe | Pro | Gln | Ile | Leu | Thr | Leu | Ile | Gly |     |  |  |  |  |
|     |     |     |     | 830 |     |     |     |     | 835 |     |     |     |     | 840 |     |  |  |  |  |
| Arg | Asn | Pro | Val | Gly | Tyr | Pro | Leu | Ala | Trp | Gln | Phe | Leu | Arg | Lys |     |  |  |  |  |



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 Asn Thr Ser Cys Asp Ser Gly Leu Gly Cys Gln Asp Thr Leu Met  
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 Cys Thr Glu Ala Lys Asp Gln Glu Pro Arg Val Thr Glu His Arg  
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 Met Gly Pro Gly Leu Ser Leu Ile Ser Tyr Thr Phe Val Cys Arg  
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 Gln Glu Asp Phe Cys Asn Asn Leu Val Asn Ser Leu Pro Leu Trp  
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|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
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| Arg | Gly | Gly | Gly | Ile<br>170 | Phe | Ser | Asn | Leu | Arg<br>175 | Val | Gln | Gly | Cys | Met<br>180 |
| Pro | Gln | Pro | Gly | Cys<br>185 | Asn | Leu | Leu | Asn | Gly<br>190 | Thr | Gln | Glu | Ile | Gly<br>195 |
| Pro | Val | Gly | Met | Thr<br>200 | Glu | Asn | Cys | Asn | Arg<br>205 | Lys | Asp | Phe | Leu | Thr<br>210 |
| Cys | His | Arg | Gly | Thr<br>215 | Thr | Ile | Met | Thr | His<br>220 | Gly | Asn | Leu | Ala | Gln<br>225 |
| Glu | Pro | Thr | Asp | Trp<br>230 | Thr | Thr | Ser | Asn | Thr<br>235 | Glu | Met | Cys | Glu | Val<br>240 |
| Gly | Gln | Val | Cys | Gln<br>245 | Glu | Thr | Leu | Leu | Leu<br>250 | Ile | Asp | Val | Gly | Leu<br>255 |
| Thr | Ser | Thr | Leu | Val<br>260 | Gly | Thr | Lys | Gly | Cys<br>265 | Ser | Thr | Val | Gly | Ala<br>270 |
| Gln | Asn | Ser | Gln | Lys<br>275 | Thr | Thr | Ile | His | Ser<br>280 | Ala | Pro | Pro | Gly | Val<br>285 |
| Leu | Val | Ala | Ser | Tyr<br>290 | Thr | His | Phe | Cys | Ser<br>295 | Ser | Asp | Leu | Cys | Asn<br>300 |
| Ser | Ala | Ser | Ser | Ser<br>305 | Ser | Val | Leu | Leu | Asn<br>310 | Ser | Leu | Pro | Pro | Gln<br>315 |
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| Gly | Gly | Leu | Ser | Thr<br>365 | Lys | Met | Ser | Ile | Gln<br>370 | Gly | Cys | Val | Ala | Gln<br>375 |
| Pro | Ser | Ser | Phe | Leu<br>380 | Leu | Asn | His | Thr | Arg<br>385 | Gln | Ile | Gly | Ile | Phe<br>390 |
| Ser | Ala | Arg | Glu | Lys<br>395 | Arg | Asp | Val | Gln | Pro<br>400 | Pro | Ala | Ser | Gln | His<br>405 |
| Glu | Gly | Gly | Gly | Ala<br>410 | Glu | Gly | Leu | Glu | Ser<br>415 | Leu | Thr | Trp | Gly | Val<br>420 |
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                   35                  40                  45  
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| Parameter      | Value | Unit |
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<211> 447

<212> PRT

<213> Homo sapiens

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| Met | Glu | Leu | Ser | Gln | Met | Ser | Glu | Leu | Met | Gly | Leu | Ser | Val | Leu |
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| Leu | Gly | Leu | Leu | Ala | Leu | Met | Ala | Thr | Ala | Ala | Val | Ala | Arg | Gly |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Trp | Leu | Arg | Ala | Gly | Glu | Glu | Arg | Ser | Gly | Arg | Pro | Ala | Cys | Gln |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Lys | Ala | Asn | Gly | Phe | Pro | Pro | Asp | Lys | Ser | Ser | Gly | Ser | Lys | Lys |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Gln | Lys | Gln | Tyr | Gln | Arg | Ile | Arg | Lys | Glu | Lys | Pro | Gln | Gln | His |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Asn | Phe | Thr | His | Arg | Leu | Leu | Ala | Ala | Ala | Leu | Lys | Ser | His | Ser |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Gly | Asn | Ile | Ser | Cys | Met | Asp | Phe | Ser | Ser | Asn | Gly | Lys | Tyr | Leu |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Ala | Thr | Cys | Ala | Asp | Asp | Arg | Thr | Ile | Arg | Ile | Trp | Ser | Thr | Lys |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Asp | Phe | Leu | Gln | Arg | Glu | His | Arg | Ser | Met | Arg | Ala | Asn | Val | Glu |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Leu | Asp | His | Ala | Thr | Leu | Val | Arg | Phe | Ser | Pro | Asp | Cys | Arg | Ala |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Phe | Ile | Val | Trp | Leu | Ala | Asn | Gly | Asp | Thr | Leu | Arg | Val | Phe | Lys |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Met | Thr | Lys | Arg | Glu | Asp | Gly | Gly | Tyr | Thr | Phe | Thr | Ala | Thr | Pro |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Glu | Asp | Phe | Pro | Lys | Lys | His | Lys | Ala | Pro | Val | Ile | Asp | Ile | Gly |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Ile | Ala | Asn | Thr | Gly | Lys | Phe | Ile | Met | Thr | Ala | Ser | Ser | Asp | Thr |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Thr | Val | Leu | Ile | Trp | Ser | Leu | Lys | Gly | Gln | Val | Leu | Ser | Thr | Ile |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Asn | Thr | Asn | Gln | Met | Asn | Asn | Thr | His | Ala | Ala | Val | Ser | Pro | Cys |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |



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<210> 371

<211> 105

<212> PRT

<213> Homo sapiens

<400> 371

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| Met | Arg | Gly | Ala | Thr | Arg | Val | Ser | Ile | Met | Leu | Leu | Leu | Val | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Val | Ser | Asp | Cys | Ala | Val | Ile | Thr | Gly | Ala | Cys | Glu | Arg | Asp | Val |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |
| Gln | Cys | Gly | Ala | Gly | Thr | Cys | Cys | Ala | Ile | Ser | Leu | Trp | Leu | Arg |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Gly | Leu | Arg | Met | Cys | Thr | Pro | Leu | Gly | Arg | Glu | Gly | Glu | Glu | Cys |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| His | Pro | Gly | Ser | His | Lys | Val | Pro | Phe | Phe | Arg | Lys | Arg | Lys | His |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Thr | Cys | Pro | Cys | Leu | Pro | Asn | Leu | Leu | Cys | Ser | Arg | Phe | Pro |
|     |     |     |     | 80  |     |     |     | 85  |     |     |     |     |     | 90  |
| Asp | Gly | Arg | Tyr | Arg | Cys | Ser | Met | Asp | Leu | Lys | Asn | Ile | Asn | Phe |
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<210> 372  
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 <212> DNA  
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<210> 373  
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 <212> PRT  
 <213> Homo sapiens

<400> 373

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| Met | Ser | Phe | Leu | Gln | Asp | Pro | Ser | Phe | Phe | Thr | Met | Gly | Met | Trp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Ser | Ile | Gly | Ala | Gly | Ala | Leu | Gly | Ala | Ala | Ala | Leu | Ala | Leu | Leu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Leu | Ala | Asn | Thr | Asp | Val | Phe | Leu | Ser | Lys | Pro | Gln | Lys | Ala | Ala |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Leu | Glu | Tyr | Leu | Glu | Asp | Ile | Asp | Leu | Lys | Thr | Leu | Glu | Lys | Glu |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Pro | Arg | Thr | Phe | Lys | Ala | Lys | Glu | Leu | Trp | Glu | Lys | Asn | Gly | Ala |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Val | Ile | Met | Ala | Val | Arg | Arg | Pro | Gly | Cys | Phe | Leu | Cys | Arg | Glu |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Glu | Ala | Ala | Asp | Leu | Ser | Ser | Leu | Lys | Ser | Met | Leu | Asp | Gln | Leu |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Gly | Val | Pro | Leu | Tyr | Ala | Val | Val | Lys | Glu | His | Ile | Arg | Thr | Glu |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Val | Lys | Asp | Phe | Gln | Pro | Tyr | Phe | Lys | Gly | Glu | Ile | Phe | Leu | Asp |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Glu | Lys | Lys | Lys | Phe | Tyr | Gly | Pro | Gln | Arg | Arg | Lys | Met | Met | Phe |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Met | Gly | Phe | Ile | Arg | Leu | Gly | Val | Trp | Tyr | Asn | Phe | Phe | Arg | Ala |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Trp | Asn | Gly | Gly | Phe | Ser | Gly | Asn | Leu | Glu | Gly | Glu | Gly | Phe | Ile |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Leu | Gly | Gly | Val | Phe | Val | Val | Gly | Ser | Gly | Lys | Gln | Gly | Ile | Leu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Leu | Glu | His | Arg | Glu | Lys | Glu | Phe | Gly | Asp | Lys | Val | Asn | Leu | Leu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Ser | Val | Leu | Glu | Ala | Ala | Lys | Met | Ile | Lys | Pro | Gln | Thr | Leu | Ala |
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<213> Hom

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Ala Pro Pro Thr Leu Pro Gly Arg Asp Glu Pro Tyr Thr Lys Gln  
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Lys Leu Phe Val His Glu Trp Ala His Leu Arg Trp Gly Val Phe  
155 160 165

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Arg Ile Asp Ser Thr Thr Lys Leu Tyr Gly Lys Asp Cys Gln Phe  
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230 235 240

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Ser Thr Trp Glu Val Ile Ser Asn Ser Glu Asp Phe Lys Asn Thr

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| Lys Ile Ser Gln | Arg Ile Val Cys Leu | Val Leu Asp Lys Ser | Gly |  |     |
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| Ser Met Gly Gly | Lys Asp Arg Leu Asn | Arg Met Asn Gln Ala | Ala |  |     |
|                 | 320                 | 325                 | 330 |  |     |
| Lys His Phe Leu | Leu Gln Thr Val Glu | Asn Gly Ser Trp Val | Gly |  |     |
|                 | 335                 | 340                 | 345 |  |     |
| Met Val His Phe | Asp Ser Thr Ala Thr | Ile Val Asn Lys Leu | Ile |  |     |
|                 | 350                 | 355                 | 360 |  |     |
| Gln Ile Lys Ser | Ser Asp Glu Arg Asn | Thr Leu Met Ala Gly | Leu |  |     |
|                 | 365                 | 370                 | 375 |  |     |
| Pro Thr Tyr Pro | Leu Gly Gly Thr Ser | Ile Cys Ser Gly Ile | Lys |  |     |
|                 | 380                 | 385                 | 390 |  |     |
| Tyr Ala Phe Gln | Val Ile Gly Glu Leu | His Ser Gln Leu Asp | Gly |  |     |
|                 | 395                 | 400                 | 405 |  |     |
| Ser Glu Val Leu | Leu Leu Thr Asp Gly | Glu Asp Asn Thr Ala | Ser |  |     |
|                 | 410                 | 415                 | 420 |  |     |
| Ser Cys Ile Asp | Glu Val Lys Gln Ser | Gly Ala Ile Val His | Phe |  |     |
|                 | 425                 | 430                 | 435 |  |     |
| Ile Ala Leu Gly | Arg Ala Ala Asp Glu | Ala Val Ile Glu Met | Ser |  |     |
|                 | 440                 | 445                 | 450 |  |     |
| Lys Ile Thr Gly | Gly Ser His Phe Tyr | Val Ser Asp Glu Ala | Gln |  |     |
|                 | 455                 | 460                 | 465 |  |     |
| Asn Asn Gly Leu | Ile Asp Ala Phe Gly | Ala Leu Thr Ser Gly | Asn |  |     |
|                 | 470                 | 475                 | 480 |  |     |
| Thr Asp Leu Ser | Gln Lys Ser Leu Gln | Leu Glu Ser Lys Gly | Leu |  |     |
|                 | 485                 | 490                 | 495 |  |     |
| Thr Leu Asn Ser | Asn Ala Trp Met Asn | Asp Thr Val Ile Ile | Asp |  |     |
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| Glu Asn Phe Thr | Val Asp Ala Thr Ser | Lys Met Ala Tyr Leu | Ser |  |     |
|                 | 545                 | 550                 | 555 |  |     |
| Ile Pro Gly Thr | Ala Lys Val Gly Thr | Trp Ala Tyr Asn Leu | Gln |  |     |
|                 | 560                 | 565                 | 570 |  |     |
| Ala Lys Ala Asn | Pro Glu Thr Leu Thr | Ile Thr Val Thr Ser | Arg |  |     |
|                 | 575                 | 580                 | 585 |  |     |
| Ala Ala Asn Ser | Ser Val Pro Pro Ile | Thr Val Asn Ala Lys | Met |  |     |

|     |     |     |     |         |     |     |     |     |         |     |     |     |     |         |
|-----|-----|-----|-----|---------|-----|-----|-----|-----|---------|-----|-----|-----|-----|---------|
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| Glu | Ile | Leu | Gln | Gly 620 | Tyr | Val | Pro | Val | Leu 625 | Gly | Ala | Asn | Val | Thr 630 |
| Ala | Phe | Ile | Glu | Ser 635 | Gln | Asn | Gly | His | Thr 640 | Glu | Val | Leu | Glu | Leu 645 |
| Leu | Asp | Asn | Gly | Ala 650 | Gly | Ala | Asp | Ser | Phe 655 | Lys | Asn | Asp | Gly | Val 660 |
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| Leu | Arg | Pro | Pro | Leu 695 | Asn | Arg | Ala | Ala | Tyr 700 | Ile | Pro | Gly | Trp | Val 705 |
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| Glu | Asp | Thr | Gln | Thr 725 | Thr | Leu | Glu | Asp | Phe 730 | Ser | Arg | Thr | Ala | Ser 735 |
| Gly | Gly | Ala | Phe | Val 740 | Val | Ser | Gln | Val | Pro 745 | Ser | Leu | Pro | Leu | Pro 750 |
| Asp | Gln | Tyr | Pro | Pro 755 | Ser | Gln | Ile | Thr | Asp 760 | Leu | Asp | Ala | Thr | Val 765 |
| His | Glu | Asp | Lys | Ile 770 | Ile | Leu | Thr | Trp | Thr 775 | Ala | Pro | Gly | Asp | Asn 780 |
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| Asn | Thr | Thr | Asp | Leu 815 | Ser | Pro | Lys | Glu | Ala 820 | Asn | Ser | Lys | Glu | Ser 825 |
| Phe | Ala | Phe | Lys | Pro 830 | Glu | Asn | Ile | Ser | Glu 835 | Glu | Asn | Ala | Thr | His 840 |
| Ile | Phe | Ile | Ala | Ile 845 | Lys | Ser | Ile | Asp | Lys 850 | Ser | Asn | Leu | Thr | Ser 855 |
| Lys | Val | Ser | Asn | Ile 860 | Ala | Gln | Val | Thr | Leu 865 | Phe | Ile | Pro | Gln | Ala 870 |
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| Thr | Pro | Asp | Lys | Ser 890 | His | Asn | Ser | Gly | Val 895 | Asn | Ile | Ser | Thr | Leu 900 |
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<211> 3877

<212> DNA

<213> Homo sapiens

<400> 380

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<211> 532

<212> PRT

<213> Homo sapiens

<400> 381

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| Met | Met | Met | Val | Arg | Arg | Gly | Leu | Leu | Ala | Trp | Ile | Ser | Arg | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Val | Val | Leu | Leu | Val | Leu | Leu | Cys | Cys | Ala | Ile | Ser | Val | Leu | Tyr |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Met | Leu | Ala | Cys | Thr | Pro | Lys | Gly | Asp | Glu | Glu | Gln | Leu | Ala | Leu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Pro | Arg | Ala | Asn | Ser | Pro | Thr | Gly | Lys | Glu | Gly | Tyr | Gln | Ala | Val |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Leu | Gln | Glu | Trp | Glu | Glu | Gln | His | Arg | Asn | Tyr | Val | Ser | Ser | Leu |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Lys | Arg | Gln | Ile | Ala | Gln | Leu | Lys | Glu | Glu | Leu | Gln | Glu | Arg | Ser |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |





|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Glu | Gln | Gln | Leu | Val | Ile | Lys | Lys | Glu | Thr | Gly | Phe | Trp | Arg | Asp |  |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |  |
| Phe | Gly | Phe | Gly | Met | Thr | Cys | Gln | Tyr | Arg | Ser | Asp | Phe | Ile | Asn |  |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |  |
| Ile | Gly | Gly | Phe | Asp | Leu | Asp | Ile | Lys | Gly | Trp | Gly | Gly | Glu | Asp |  |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |  |
| Val | His | Leu | Tyr | Arg | Lys | Tyr | Leu | His | Ser | Asn | Leu | Ile | Val | Val |  |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |  |
| Arg | Thr | Pro | Val | Arg | Gly | Leu | Phe | His | Leu | Trp | His | Glu | Lys | Arg |  |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |
| Cys | Met | Asp | Glu | Leu | Thr | Pro | Glu | Gln | Tyr | Lys | Met | Cys | Met | Gln |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |  |
| Ser | Lys | Ala | Met | Asn | Glu | Ala | Ser | His | Gly | Gln | Leu | Gly | Met | Leu |  |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |  |
| Val | Phe | Arg | His | Glu | Ile | Glu | Ala | His | Leu | Arg | Lys | Gln | Lys | Gln |  |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |  |
| Lys | Thr | Ser | Ser | Lys | Lys | Thr |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 530 |     |     |     |     |     |     |     |     |     |     |  |

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 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 382  
 ctcggggaaa gggacttgat gttgg 25  
  
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 <212> DNA  
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 <223> Synthetic oligonucleotide probe  
  
 <400> 383  
 gcgaaggatga gcctctatct cgtgcc 26  
  
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 <211> 19  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 384  
 cagcctacac gtattgagg 19  
  
 <210> 385  
 <211> 48  
 <212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 385

cagtcagtac aatcctggca taatatacgg ccaccatgat gcagtccc 48

<210> 386

<211> 1346

<212> DNA

<213> Homo sapiens

<400> 386

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gaacagctct gggagataaa gcatatgcct gggataccaa tgaagaatac 150  
ctcttcaaag cgatggtagc tttctccatg agaaaagttc ccaacagaga 200  
agcaacagaa atttcccatg tctactttg caatgtaacc cagagggtat 250  
cattctgggtt tgtgggttaca gacccttcaa aaaatcacac ccttcctgct 300  
gttgagggtgc aatcagccat aagaatgaac aagaaccgga tcaacaatgc 350  
cttcttttcta aatgaccaa ctctggaatt tttaaaaatc ccttcacac 400  
ttgcaccacc catggacca tctgtgcca tctggattat tatatttggt 450  
gtgatatttt gcatcatcat agttgcaatt gcactactga tttatcagg 500  
gatctggcaa cgtagaaga agaacaaaga accatctgaa gtggatgacg 550  
ctgaagataa gtgtgaaaac atgatcacia ttgaaaatgg catcccctct 600  
gatcccctgg acatgaagg gggcatatta atgatgcctt catgacagag 650  
gatgagaggc tcaccctct ctgaagggt gttgttctgc ttcctcaaga 700  
aattaaacat ttgtttctgt gtgactgctg agcatcctga aataccaaga 750  
gcagatcata tatattgttt caccattott cttttgtaat aaattttgaa 800  
tgtgcttgaa agtgaaaagc aatcaattat accaccaac accactgaaa 850  
tcataagcta ttcacgactc aaaatattct aaaatatttt tctgacagta 900  
tagtgtataa atgtggtcat gtggtatttg tagttattga ttttaagcatt 950  
tttagaaata agatcaggca tatgtatata ttttcacact tcaaagacct 1000  
aaggaaaaat aaattttcca gtggagaata catataatat ggtgtagaaa 1050  
tcattgaaaa tggatccttt ttgacgatca cttatatcac tctgtatatg 1100  
actaagtaaa caaaagtgag aagtaattat tgtaaatgga tggataaaaa 1150  
tggaattact catatacagg gtggaatttt atcctgttat cacaccaaca 1200  
gttgattata tattttctga atatcagccc ctaataggac aattctattt 1250

gttgaccatt tctacaattt gtaaaagtcc aatctgtgct aacttaataa 1300

agtaataatc atctcttttt aaaaaaaaaa aaaaaaaaaa aaaaaa 1346

<210> 387

<211> 212

<212> PRT

<213> Homo sapiens

<400> 387

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Leu | Trp | Leu | Leu | Phe | Phe | Leu | Val | Thr | Ala | Ile | His | Ala | Glu |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |
| Leu | Cys | Gln | Pro | Gly | Ala | Glu | Asn | Ala | Phe | Lys | Val | Arg | Leu | Ser |  |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Ile | Arg | Thr | Ala | Leu | Gly | Asp | Lys | Ala | Tyr | Ala | Trp | Asp | Thr | Asn |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Glu | Glu | Tyr | Leu | Phe | Lys | Ala | Met | Val | Ala | Phe | Ser | Met | Arg | Lys |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Val | Pro | Asn | Arg | Glu | Ala | Thr | Glu | Ile | Ser | His | Val | Leu | Leu | Cys |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Asn | Val | Thr | Gln | Arg | Val | Ser | Phe | Trp | Phe | Val | Val | Thr | Asp | Pro |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Ser | Lys | Asn | His | Thr | Leu | Pro | Ala | Val | Glu | Val | Gln | Ser | Ala | Ile |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Arg | Met | Asn | Lys | Asn | Arg | Ile | Asn | Asn | Ala | Phe | Phe | Leu | Asn | Asp |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Gln | Thr | Leu | Glu | Phe | Leu | Lys | Ile | Pro | Ser | Thr | Leu | Ala | Pro | Pro |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Met | Asp | Pro | Ser | Val | Pro | Ile | Trp | Ile | Ile | Ile | Phe | Gly | Val | Ile |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Phe | Cys | Ile | Ile | Ile | Val | Ala | Ile | Ala | Leu | Leu | Ile | Leu | Ser | Gly |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Ile | Trp | Gln | Arg | Arg | Arg | Lys | Asn | Lys | Glu | Pro | Ser | Glu | Val | Asp |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Asp | Ala | Glu | Asp | Lys | Cys | Glu | Asn | Met | Ile | Thr | Ile | Glu | Asn | Gly |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Ile | Pro | Ser | Asp | Pro | Leu | Asp | Met | Lys | Gly | Gly | Ile | Leu | Met | Met |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |

Pro Ser

<210> 388

<211> 1371

<212> DNA

<213> Homo sapiens

<400> 388

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ggccttggca ggggtgttga gccctcggtc tgccccgtcc ggtctctggg 100  
 gccaaaggctg ggtttccctc atgtatggca agagctctac tcgtgcgggtg 150  
 cttcttctcc ttggcataca gtcacagct ctttggccta tagcagctgt 200  
 ggaaatttat acctcccggg tgctggaggc tgttaatggg acagatgctc 250  
 ggttaaaatg cactttctcc agctttgcc ctgtgggtga tgctctaaca 300  
 gtgacctgga attttcgtcc tctagacggg ggacctgagc agtttgtatt 350  
 ctactaccac atagatccct tccaacccat gagtgggcgg ttttaaggacc 400  
 ggggtgtcttg ggatgggaat cctgagcggc acgatgcctc catccttctc 450  
 tggaaactgc agttcgacga caatgggaca tacacctgcc aggtgaagaa 500  
 cccacctgat gttgatgggg tgatagggga gatccggctc agcgtcgtgc 550  
 aactgtacg cttctctgag atccacttcc tggctctggc cattggctct 600  
 gcctgtgcac tgatgatcat aatagtaatt gtagtggctc tcttccagca 650  
 ttaccggaaa aagcgatggg ccgaaagagc tcataaagtg gtggagataa 700  
 aatcaaaaga agaggaaagg ctcaaccaag agaaaaaggc ctctgtttat 750  
 ttagaagaca cagactaaca attttagatg gaagctgaga tgatttccaa 800  
 gaacaagaac cctagtattt cttgaagtta atggaaactt ttctttggct 850  
 tttccagttg tgaccggtt tccaaccagt tctgcagcat attagattct 900  
 agacaagcaa caccctctg gagccagcac agtgctcctc catatcacca 950  
 gtcatacaca gcctcattat taaggtctta ttttaattca gagtgtaaatt 1000  
 tttttcaagt gctcattagg ttttataaac aagaagctac atttttgccc 1050  
 ttaagacact acttacagtg ttatgacttg tatacacata tattgggtatc 1100  
 aaaggggata aaagccaatt tgtctgttac atttcctttc acgtattttct 1150  
 ttttagcagca cttctgctac taaagttaat gtgtttactc tctttccttc 1200  
 ccacattctc aattaaaagg tgagctaagc ctctcgggtg tttctgatta 1250  
 acagtaaata ctaaattcaa actgttaaat gacattttta tttttatgtc 1300  
 tctccttaac tatgagacac atcttgtttt actgaatttc tttcaatatt 1350  
 ccaggtgata gatttttgtc g 1371

<210> 389  
 <211> 215  
 <212> PRT  
 <213> Homo sapiens

<400> 389  
 Met Tyr Gly Lys Ser Ser Thr Arg Ala Val Leu Leu Leu Leu Gly  
     1                    5                    10                    15

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ile | Gln | Leu | Thr | Ala | Leu | Trp | Pro | Ile | Ala | Ala | Val | Glu | Ile | Tyr |  |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Thr | Ser | Arg | Val | Leu | Glu | Ala | Val | Asn | Gly | Thr | Asp | Ala | Arg | Leu |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Lys | Cys | Thr | Phe | Ser | Ser | Phe | Ala | Pro | Val | Gly | Asp | Ala | Leu | Thr |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Val | Thr | Trp | Asn | Phe | Arg | Pro | Leu | Asp | Gly | Gly | Pro | Glu | Gln | Phe |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Val | Phe | Tyr | Tyr | His | Ile | Asp | Pro | Phe | Gln | Pro | Met | Ser | Gly | Arg |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Phe | Lys | Asp | Arg | Val | Ser | Trp | Asp | Gly | Asn | Pro | Glu | Arg | Tyr | Asp |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Ala | Ser | Ile | Leu | Leu | Trp | Lys | Leu | Gln | Phe | Asp | Asp | Asn | Gly | Thr |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Tyr | Thr | Cys | Gln | Val | Lys | Asn | Pro | Pro | Asp | Val | Asp | Gly | Val | Ile |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Gly | Glu | Ile | Arg | Leu | Ser | Val | Val | His | Thr | Val | Arg | Phe | Ser | Glu |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Ile | His | Phe | Leu | Ala | Leu | Ala | Ile | Gly | Ser | Ala | Cys | Ala | Leu | Met |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Ile | Ile | Ile | Val | Ile | Val | Val | Val | Leu | Phe | Gln | His | Tyr | Arg | Lys |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Lys | Arg | Trp | Ala | Glu | Arg | Ala | His | Lys | Val | Val | Glu | Ile | Lys | Ser |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Lys | Glu | Glu | Glu | Arg | Leu | Asn | Gln | Glu | Lys | Lys | Val | Ser | Val | Tyr |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Leu | Glu | Asp | Thr | Asp |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 215 |     |     |     |     |     |     |     |     |     |     |  |

<210> 390  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 390  
 ccgaggccat ctagaggcca gagc 24

<210> 391  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 391  
 acaggcagag ccaatggcca gagc 24

<210> 392  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 392  
gagaggactg cgggagtttg ggacctttgt gcagacgtgc tcatg 45

<210> 393  
<211> 471  
<212> DNA  
<213> Homo sapiens

<400> 393  
gcatttttgt ctgtgctccc tgatcttcag gtcaccacca tgaagttctt 50  
agcagtcctg gtactcttgg gagtttccat ctttctggtc tctgcccaga 100  
atccgacaac agctgctcca gctgacacgt atccagctac tggctcctgct 150  
gatgatgaag cccctgatgc tgaaaccact gctgctgcaa ccactgcgac 200  
cactgctgct cctaccactg caaccaccgc tgcttctacc actgctcgta 250  
aagacattcc agttttaccc aaatggggtg gggatctccc gaatggtaga 300  
gtgtgtccct gagatggaat cagcttgagt cttctgcaat tggtcacaac 350  
tattcatgct tcctgtgatt tcatccaact acttaccttg cctacgatat 400  
cccctttatc tctaatacgt ttattttctt tcaaataaaa aataactatg 450  
agcaacataa aaaaaaaaaa a 471

<210> 394  
<211> 90  
<212> PRT  
<213> Homo sapiens

<400> 394  
Met Lys Phe Leu Ala Val Leu Val Leu Leu Gly Val Ser Ile Phe  
1 5 10 15  
Leu Val Ser Ala Gln Asn Pro Thr Thr Ala Ala Pro Ala Asp Thr  
20 25 30  
Tyr Pro Ala Thr Gly Pro Ala Asp Asp Glu Ala Pro Asp Ala Glu  
35 40 45  
Thr Thr Ala Ala Ala Thr Thr Ala Thr Thr Ala Ala Pro Thr Thr  
50 55 60  
Ala Thr Thr Ala Ala Ser Thr Thr Ala Arg Lys Asp Ile Pro Val  
65 70 75  
Leu Pro Lys Trp Val Gly Asp Leu Pro Asn Gly Arg Val Cys Pro  
80 85 90

<210> 395  
<211> 25

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 395  
gctccctgat cttcatgtca ccacc 25

<210> 396  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 396  
cagggacaca ctctaccatt cgggag 26

<210> 397  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 397  
ccatctttct ggtctctgcc cagaatccga caacagctgc tc 42

<210> 398  
<211> 907  
<212> DNA  
<213> Homo sapiens

<400> 398  
ggactctgaa ggtcccaagc agctgctgag gcccccaagg aagtgggtcc 50  
aaccttggac ccctaggggt ctggatttgc tggttaacaa gataacctga 100  
gggcaggacc ccatagggga atgctacctc ctgcccttcc acctgccctg 150  
gtgttcacgg tggcctggtc cctccttgcc gagagagtgt cctgggtcag 200  
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ggagtggcac gaggtggggc tttgtgccag taaaaccaca ggctggattt 500  
gcctgcgggc catggtccct gtctagggca gcaattctca accttcttgc 550  
tctcaggacc ccaaagagct ttcattgtat ctattgattt ttaccacatt 600  
agcaattaaa actgagaaat gggccgggca cgggtgggtca cgctgtaat 650

cccagcactt tgggaggccg aggcgggtgg atcacctgag atcaggagtt 700  
 caagaccagc ctggccaaca tggtgaaacc ttgtctacta aaaatacaaa 750  
 aaattagcca ggcacagtgg tgtgactgg tagtcccagt tactcgggag 800  
 gctgaggcag gaaaatcgct tgaaccagg aggcggacgt tgcggtgagc 850  
 cgagatcgcg ccgctgattc cagcctgggc gacaagagtg agactccatc 900  
 tcacaca 907

<210> 399  
 <211> 120  
 <212> PRT  
 <213> Homo sapiens

<400> 399  
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 1 5 10 15  
 Trp Ser Leu Leu Ala Glu Arg Val Ser Trp Val Arg Asp Ala Glu  
 20 25 30  
 Asp Ala His Arg Leu Gln Pro Phe Val Thr Glu Arg Thr Leu Gly  
 35 40 45  
 Lys Val Gln Arg Trp Ser Gly Val His Thr Gln Thr Gly Gly Arg  
 50 55 60  
 Ala Gly Gly Gly Gln Phe Cys Cys Ala Trp Leu Asp Ser Lys Arg  
 65 70 75  
 Val Leu Ala Ser Pro Gly Trp Gly Ala Ala Asn Ser Ile Lys Asn  
 80 85 90  
 Gln Arg Val Trp Ala Pro Ala Thr Glu Ser Ser Ala Gln Leu Leu  
 95 100 105  
 Cys Cys Trp Pro Val Gly Val Ala Arg Gly Gly Ala Leu Cys Gln  
 110 115 120

<210> 400  
 <211> 893  
 <212> DNA  
 <213> Homo sapiens

<400> 400  
 gtcatgccag tgcctgctct gtgcctgctc tgggccctgg caatggtgac 50  
 ccggcctgcc tcagcggccc ccatgggcgg cccagaactg gcacagcatg 100  
 aggagctgac cctgctcttc catgggaccc tgcagctggg ccaggccctc 150  
 aacggtgtgt acaggaccac ggagggacgg ctgacaaagg ccaggaacag 200  
 cctgggtctc tatggccgca caatagaact cctggggcag gaggtcagcc 250  
 ggggccggga tgcagcccag gaacttcggg caagcctgtt ggagactcag 300  
 atggaggagg atattctgca gctgcaggca gaggccacag ctgaggtgct 350  
 gggggaggtg gccaggcac agaaggtgct acgggacagc gtgcagcggc 400





Leu Pro Ala

<210> 402  
 <211> 1915  
 <212> DNA  
 <213> Homo sapiens

<400> 402  
 ggcaacatgg ctcagcaggc ttgccccaga gccatggcaa agaatggact 50  
 tgtaatttgc atcctggtga tcaccttact cctggaccag accaccagcc 100  
 acacatccag attaaaagcc aggaagcaca gcaaacgtcg agtgagagac 150  
 aaggatggag atctgaagac tcaaattgaa aagctctgga cagaagtcaa 200  
 tgccttgaag gaaattcaag ccctgcagac agtctgtctc cgaggcacta 250  
 aagttcacia gaaatgctac cttgcttcag aaggtttgaa gcatttccat 300  
 gaggccaatg aagactgcat ttccaaagga ggaatcctgg ttatccccag 350  
 gaactccgac gaaatcaacg ccctccaaga ctatggtaaa aggagcctgc 400  
 caggtgtcaa tgacttttgg ctgggcatca atgacatggc cacggaaggc 450  
 aagtttggtg acgtcaacgg aatcgctatc tccttctca actgggaccg 500  
 tgcacagcct aacggtggca agcgagaaaa ctgtgtcctg ttctcccaat 550  
 cagctcaggg caagtggagt gatgaggcct gtcgcagcag caagagatac 600  
 atatgcgagt tcaccatccc taaataggtc tttctccaat gtgtcctcca 650  
 agcaagattc atcataactt ataggttcat gatctctaag atcaagtaaa 700  
 aatcataatt tttacttatt aaaaaattgc aacacaagat caatgtccat 750  
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 tgcccttctt ggggtatagg ggatcagaaa tattgatcca tgtgcacgca 850  
 gataaaatgg cttctgctaa acagactaaa atctttctct ctagtctttc 900  
 tcacttgtag aaaccagtt tgttttcaaa aaatcacagt agcaatgcaa 950  
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 gaagtttagc gtatgtttga ctaacaaaaa ttccctacat cagagactct 1050  
 aggtgctata taatccaaaa acttttcagc ctgttgctca ttctgtcca 1100  
 tgctggcaat aataccttgt cagcccatta cccttatttt gaattgctcc 1150  
 atctcctggg gggacttgta tcttgtctgc catatcagaa cacaaacccc 1200  
 tgaagagggt ctgatttgat tttttttttt tcttcatgcc tacccttttt 1250  
 ttggaagttt ccagccgcaa tttgaaatga aatgacaagg tgtatatattg 1300



|   |     |  |     |  |     |
|---|-----|--|-----|--|-----|
|   | 155 |  | 160 |  | 165 |
| Ala Gln Pro Asn Gly Gly Lys Arg Glu Asn Cys Val Leu Phe Ser |     |  |     |  |     |
|   | 170 |  | 175 |  | 180 |
| Gln Ser Ala Gln Gly Lys Trp Ser Asp Glu Ala Cys Arg Ser Ser |     |  |     |  |     |
|   | 185 |  | 190 |  | 195 |
| Lys Arg Tyr Ile Cys Glu Phe Thr Ile Pro Lys                 |     |  |     |  |     |
|   | 200 |  | 205 |  |     |

<210> 404  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 404  
 cctggttatc cccaggaact ccgac 25

<210> 405  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 405  
 ctcttgctgc tgcgacaggc ctc 23

<210> 406  
 <211> 46  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 406  
 cgccctccaa gactatggta aaaggagcct gccaggtgtc aatgac 46

<210> 407  
 <211> 570  
 <212> DNA  
 <213> Homo sapiens

<400> 407  
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 ttccccgcgc gccccgagcc cccgcgccat gaagctcgcc gccctcctgg 100  
 ggctctgcgt ggccctgtcc tgcagctccg ctgctgcttt cttagtgggc 150  
 tcggccaagc ctgtggccca gcctgtogct gcgctggagt cggcggcgga 200  
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 agctcctgct gagcagcctg ggcacccccg tgaaccacct catagagggc 300  
 tcccagaagt gtgtggctga gctgggtccc caggccgtgg gggccgtgaa 350

TTT 3340660



ggctcctgcc ttccctcttt aagggactca gagagaccct ctcccgcaac 550  
 ctggaactgg gcctctcaca ggggagtttt gccttcatcc acaaggattt 600  
 tgatgtcaaa gagactttct tcaatttatc caagaggtat ttgatacag 650  
 agtgcgtagc tatgaatttt cgcaatgcct cacaggccaa aaggctcatg 700  
 aatcattaca ttaacaaaga gactcggggg aaaattocca aactgtttga 750  
 tgagattaat cctgaaacca aattaattct tgtggattac atcttgttca 800  
 aagggaatg gttgaccca tttgacctg tcttaccga agtcgacact 850  
 ttccacctgg acaagtacaa gaccattaag gtgcccata tgtacgggtg 900  
 aggcaagttt gcctccacct ttgacaagaa ttttcgttgt catgtcctca 950  
 aactgcccta ccaaggaaat gccaccatgc tgggtggtcct catggagaaa 1000  
 atgggtgacc acctcgccct tgaagactac ctgaccacag acttggtgga 1050  
 gacatggctc agaaacatga aaaccagaaa catggaagtt ttctttccga 1100  
 agttcaagct agatcagaag tatgagatgc atgagctgct taggcagatg 1150  
 ggaatcagaa gaatcttctc accctttgct gaccttagtg aactctcagc 1200  
 tactggaaga aatctccaag tatccagggt tttacgaaga acagtgattg 1250  
 aagttgatga aaggggcact gaggcagtgg caggaatctt gtcagaaatt 1300  
 actgcttatt ccatgcctcc tgtcatcaaa gtggaccggc catttcattt 1350  
 catgatctat gaagaaacct ctggaatgct tctgtttctg ggcagggtgg 1400  
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 aaataaatac agtagtcccc acttatctga gggggatata ttcaaagacc 1600  
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 gtaagagatt aacaataata acaacattaa gtaaaatgag ttacttgaac 1750  
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 aagtgactca tgggagagga gcatagacag tgtggagaca ttgggcaagg 1850  
 ggagaattca catcctgggt gggacagagc aggacgatgc aagattccat 1900  
 cccactactc agaatggcat gctgcttaag acttttagat tgtttatttc 1950  
 tggaattttt catttaatgt ttttgacca tggttgacca tggttaactg 2000  
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<210> 410  
 <211> 444  
 <212> PRT  
 <213> Homo sapiens

<400> 410

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Val | Val | Pro | Ser | Leu | Leu | Leu | Ser | Val | Leu | Leu | Ala | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Val | Trp | Leu | Val | Pro | Gly | Leu | Ala | Pro | Ser | Pro | Gln | Ser | Pro | Glu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Thr | Pro | Ala | Pro | Gln | Asn | Gln | Thr | Ser | Arg | Val | Val | Gln | Ala | Pro |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Arg | Glu | Glu | Glu | Glu | Asp | Glu | Gln | Glu | Ala | Ser | Glu | Glu | Lys | Ala |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Gly | Glu | Glu | Glu | Lys | Ala | Trp | Leu | Met | Ala | Ser | Arg | Gln | Gln | Leu |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Ala | Lys | Glu | Thr | Ser | Asn | Phe | Gly | Phe | Ser | Leu | Leu | Arg | Lys | Ile |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ser | Met | Arg | His | Asp | Gly | Asn | Met | Val | Phe | Ser | Pro | Phe | Gly | Met |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Ser | Leu | Ala | Met | Thr | Gly | Leu | Met | Leu | Gly | Ala | Thr | Gly | Pro | Thr |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Glu | Thr | Gln | Ile | Lys | Arg | Gly | Leu | His | Leu | Gln | Ala | Leu | Lys | Pro |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Thr | Lys | Pro | Gly | Leu | Leu | Pro | Ser | Leu | Phe | Lys | Gly | Leu | Arg | Glu |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Thr | Leu | Ser | Arg | Asn | Leu | Glu | Leu | Gly | Leu | Ser | Gln | Gly | Ser | Phe |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ala | Phe | Ile | His | Lys | Asp | Phe | Asp | Val | Lys | Glu | Thr | Phe | Phe | Asn |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Leu | Ser | Lys | Arg | Tyr | Phe | Asp | Thr | Glu | Cys | Val | Pro | Met | Asn | Phe |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Arg | Asn | Ala | Ser | Gln | Ala | Lys | Arg | Leu | Met | Asn | His | Tyr | Ile | Asn |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Lys | Glu | Thr | Arg | Gly | Lys | Ile | Pro | Lys | Leu | Phe | Asp | Glu | Ile | Asn |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Pro | Glu | Thr | Lys | Leu | Ile | Leu | Val | Asp | Tyr | Ile | Leu | Phe | Lys | Gly |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Lys | Trp | Leu | Thr | Pro | Phe | Asp | Pro | Val | Phe | Thr | Glu | Val | Asp | Thr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Phe | His | Leu | Asp | Lys | Tyr | Lys | Thr | Ile | Lys | Val | Pro | Met | Met | Tyr |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Gly | Ala | Gly | Lys | Phe | Ala | Ser | Thr | Phe | Asp | Lys | Asn | Phe | Arg | Cys |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |





aataaacccc agcaggcaaa aaaaaaaaaa aaaaaa 636

<210> 412  
<211> 151  
<212> PRT  
<213> Homo sapiens

<400> 412  
Met Arg Arg Leu Leu Leu Val Thr Ser Leu Val Val Val Leu Leu  
1 5 10 15  
Trp Glu Ala Gly Ala Val Pro Ala Pro Lys Val Pro Ile Lys Met  
20 25 30  
Gln Val Lys His Trp Pro Ser Glu Gln Asp Pro Glu Lys Ala Trp  
35 40 45  
Gly Ala Arg Val Val Glu Pro Pro Glu Lys Asp Asp Gln Leu Val  
50 55 60  
Val Leu Phe Pro Val Gln Lys Pro Lys Leu Leu Thr Thr Glu Glu  
65 70 75  
Lys Pro Arg Gly Gln Gly Arg Gly Pro Ile Leu Pro Gly Thr Lys  
80 85 90  
Ala Trp Met Glu Thr Glu Asp Thr Leu Gly Arg Val Leu Ser Pro  
95 100 105  
Glu Pro Asp His Asp Ser Leu Tyr His Pro Pro Pro Glu Glu Asp  
110 115 120  
Gln Gly Glu Glu Arg Pro Arg Leu Trp Val Met Pro Asn His Gln  
125 130 135  
Val Leu Leu Gly Pro Glu Glu Asp Gln Asp His Ile Tyr His Pro  
140 145 150  
Gln

<210> 413  
<211> 1176  
<212> DNA  
<213> Homo sapiens

<400> 413  
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aggagctctc tgtaccaag gaaagtgcag ctgagactca gacaagatta 100  
caatgaacca actcagcttc ctgctgtttc tcatagcgac caccagagga 150  
tggagtacag atgaggctaa tacttacttc aaggaatgga cctgttcttc 200  
gtctccatct ctgcccagaa gctgcaagga aatcaaagac gaatgtccta 250  
gtgcatttga tggcctgtat tttctccgca ctgagaatgg tggtatctac 300  
cagaccttct gtgacatgac ctctgggggt ggcggctgga ccctgggtggc 350  
cagcgtgcat gagaatgaca tgcgtgggaa gtgcacggtg ggcgatcgct 400

ggtccagtca gcagggcagc aaagcagact acccagaggg ggacggcaac 450  
 tgggccaact acaacacctt tggatctgca gagggcgcca cgagcgatga 500  
 ctacaagaac cctggctact acgacatcca ggccaaggac ctgggcatct 550  
 ggcacgtgcc caataagtcc cccatgcagc actggagaaa cagctccctg 600  
 ctgaggtacc gcacggacac tggtctctc cagacactgg gacataatct 650  
 gtttggcatc taccagaaat atccagtga atatggagaa ggaaagtgtt 700  
 ggactgacaa cggcccgtg atccctgtg tctatgattt tggcgacgcc 750  
 cagaaaacag catcttatta ctcaccctat ggccagcggg aattcactgc 800  
 gggatttgtt cagttcaggg tatttaataa cgagagagca gccaacgcct 850  
 tgtgtgctgg aatgagggc accggatgta aactgagca tcaactgcatt 900  
 ggtggaggag gatactttcc agaggccagt cccagcagt gtggagattt 950  
 ttctggtttt gattggagt gatatggaac tcatgttggt tacagcagca 1000  
 gccgtgagat aactgaggca gctgtgcttc tattctatcg ttgagagttt 1050  
 tgtgggaggg aaccagacc tctcctcca accatgagat cccaaggatg 1100  
 gagaacaact taccagtag ctagaatgtt aatggcagaa gagaaaacaa 1150  
 taaatcatat tgactcaaga aaaaaa 1176

<210> 414  
 <211> 313  
 <212> PRT  
 <213> Homo sapiens

<400> 414  
 Met Asn Gln Leu Ser Phe Leu Leu Phe Leu Ile Ala Thr Thr Arg  
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 Gly Trp Ser Thr Asp Glu Ala Asn Thr Tyr Phe Lys Glu Trp Thr  
 20 25 30  
 Cys Ser Ser Ser Pro Ser Leu Pro Arg Ser Cys Lys Glu Ile Lys  
 35 40 45  
 Asp Glu Cys Pro Ser Ala Phe Asp Gly Leu Tyr Phe Leu Arg Thr  
 50 55 60  
 Glu Asn Gly Val Ile Tyr Gln Thr Phe Cys Asp Met Thr Ser Gly  
 65 70 75  
 Gly Gly Gly Trp Thr Leu Val Ala Ser Val His Glu Asn Asp Met  
 80 85 90  
 Arg Gly Lys Cys Thr Val Gly Asp Arg Trp Ser Ser Gln Gln Gly  
 95 100 105  
 Ser Lys Ala Asp Tyr Pro Glu Gly Asp Gly Asn Trp Ala Asn Tyr  
 110 115 120  
 Asn Thr Phe Gly Ser Ala Glu Ala Ala Thr Ser Asp Asp Tyr Lys



ccacaatagt tcagtgcacat ctgctgcttc atcagtaaca atcacaacaa 550  
 ctatgcattc tgaagcaaag aaaggatcaa aatttgatac tgggagcttt 600  
 gttgggtgga ttgtattaac gctgggagtt ttatctattc tttacattgg 650  
 atgcaaaatg tattactcaa gaagaggcat tcggtatcga accatagatg 700  
 aacatgatgc catcatttaa ggaaatccat ggaccaagga tggaatacag 750  
 attgatgctg ccctatcaat taatttttgg ttattaatag tttaaaacaa 800  
 tattctcttt ttgaaaatag tataaacagg ccatgcatat aatgtacagt 850  
 gtattacgta aatatgtaaa gattcttcaa ggtaacaagg gtttgggttt 900  
 tgaaataaac atctggatct tatagaccgt tcatacaatg gtttttagcaa 950  
 gttcatagta agacaaacaa gtcctatctt ttttttttgg ctgggggtggg 1000  
 ggcattgggc acatatgacc agtaattgaa agacgtcatc actgaaagac 1050  
 agaatgccat ctgggcatac aaataagaag tttgtcacag cactcaggat 1100  
 tttgggtatc ttttgtagct cacataaaga acttcagtgc ttttcagagc 1150  
 tggatatatc ttaattacta atgccacaca gaaattatac aatcaaacta 1200  
 gatctgaagc ataatttaag aaaaacatca acattttttg tgctttaaac 1250  
 tgtagtagtt ggtctagaaa caaaatactc c 1281

<210> 416  
 <211> 208  
 <212> PRT  
 <213> Homo sapiens

<400> 416  
 Met Gly Leu Gly Ala Arg Gly Ala Trp Ala Ala Leu Leu Leu Gly  
 1 5 10 15  
 Thr Leu Gln Val Leu Ala Leu Leu Gly Ala Ala His Glu Ser Ala  
 20 25 30  
 Ala Met Ala Ala Ser Ala Asn Ile Glu Asn Ser Gly Leu Pro His  
 35 40 45  
 Asn Ser Ser Ala Asn Ser Thr Glu Thr Leu Gln His Val Pro Ser  
 50 55 60  
 Asp His Thr Asn Glu Thr Ser Asn Ser Thr Val Lys Pro Pro Thr  
 65 70 75  
 Ser Val Ala Ser Asp Ser Ser Asn Thr Thr Val Thr Thr Met Lys  
 80 85 90  
 Pro Thr Ala Ala Ser Asn Thr Thr Thr Pro Gly Met Val Ser Thr  
 95 100 105  
 Asn Met Thr Ser Thr Thr Leu Lys Ser Thr Pro Lys Thr Thr Ser  
 110 115 120  
 Val Ser Gln Asn Thr Ser Gln Ile Ser Thr Ser Thr Met Thr Val

|                 |                     |                     |     |  |     |
|-----------------|---------------------|---------------------|-----|--|-----|
|                 | 125                 |                     | 130 |  | 135 |
| Thr His Asn Ser | Ser Val Thr Ser Ala | Ala Ser Ser Val Thr | Ile |  |     |
|                 | 140                 | 145                 | 150 |  |     |
| Thr Thr Thr Met | His Ser Glu Ala Lys | Lys Gly Ser Lys Phe | Asp |  |     |
|                 | 155                 | 160                 | 165 |  |     |
| Thr Gly Ser Phe | Val Gly Gly Ile Val | Leu Thr Leu Gly Val | Leu |  |     |
|                 | 170                 | 175                 | 180 |  |     |
| Ser Ile Leu Tyr | Ile Gly Cys Lys Met | Tyr Tyr Ser Arg Arg | Gly |  |     |
|                 | 185                 | 190                 | 195 |  |     |
| Ile Arg Tyr Arg | Thr Ile Asp Glu His | Asp Ala Ile Ile     |     |  |     |
|                 | 200                 | 205                 |     |  |     |

<210> 417  
 <211> 1728  
 <212> DNA  
 <213> Homo sapiens

<400> 417  
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 gcgatggcga ccctgtgggg aggccttctt cggcttggct ccttgctcag 150  
 cctgtcgtgc ctggcgcttt ccgtgctgct gctggcgag ctgtcagacg 200  
 ccgccaagaa tttcgaggat gtcagatgta aatgtatctg ccctccctat 250  
 aaagaaaatt ctgggcatat ttataataag aacatatctc agaaagattg 300  
 tgattgcctt catgttgtgg agcccatgcc tgtgcggggg cctgatgtag 350  
 aagcatactg totacgtgt gaatgcaaat atgaagaaag aagctctgtc 400  
 acaatcaagg ttaccattat aatttatctc tccattttgg gccttctact 450  
 tctgtacatg gtatatctta ctctgggtga gcccatactg aagaggcgcc 500  
 tctttggaca tgcacagttg atacagagtg atgatgatat tggggatcac 550  
 cagccttttg caaatgcaca cgatgtgcta gcccgctccc gcagtcgagc 600  
 caacgtgctg aacaaggtag aatatgcaca gcagcgctgg aagcttcaag 650  
 tccaagagca gcgaaagtct gtctttgacc ggcatgttgt cctcagctaa 700  
 ttgggaattg aattcaagg gactagaaag aaacaggcag acaactggaa 750  
 agaactgact gggttttgct gggtttcatt ttaatacctt gttgatttca 800  
 ccaactgttg ctggaagatt caaaactgga agcaaaaact tgcttgattt 850  
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 aaagtcagcc aataagtctt ttcctatttg tgacttttac taataaaaaat 950  
 aaatctgcct gtaaattatc ttgaagtcct ttacctggaa caagcactct 1000

ctttttcacc acatagtttt aacttgactt tcaagataat tttcaggggtt 1050  
 tttgttggtg ttgttttttg tttgtttggt ttggtgggag aggggagggga 1100  
 tgccctgggaa gtgggttaaca acttttttca agtcacttta ctaaacaac 1150  
 ttttgtaaag agaccttacc ttctattttc gagtttcatt tatattttgc 1200  
 agtgtagcca gcctcatcaa agagctgact tactcatttg acttttgcac 1250  
 tgactgtatt atctgggtat ctgctgtgtc tgcacttcat ggtaaacggg 1300  
 atctaaaatg cctgggtggct tttcacaaaa agcagatttt cttcatgtac 1350  
 tgtgatgtct gatgcaatgc atcctagaac aaactggcca tttgctagtt 1400  
 tactctaaag actaaacata gtcttggtgt gtgtgggtctt actcatcttc 1450  
 tagtaccttt aaggacaaat cctaaggact tggacacttg caataaagaa 1500  
 attttatttt aaaccaagc ctccctggat tgataatata tacacatttg 1550  
 tcagcatttc cggtcgtggt gagaggcagc tgtttgagct ccaatatgtg 1600  
 cagctttgaa ctagggctgg ggttggtgggt gcctcttctg aaagggtctaa 1650  
 ccattattgg ataactggct tttttcttcc tatgtcctct ttggaatgta 1700  
 acaataaaaa taatttttga aacatcaa 1728

<210> 418  
 <211> 198  
 <212> PRT  
 <213> Homo sapiens

<400> 418  
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 Ser Leu Ser Cys Leu Ala Leu Ser Val Leu Leu Leu Ala Gln Leu  
 20 25 30  
 Ser Asp Ala Ala Lys Asn Phe Glu Asp Val Arg Cys Lys Cys Ile  
 35 40 45  
 Cys Pro Pro Tyr Lys Glu Asn Ser Gly His Ile Tyr Asn Lys Asn  
 50 55 60  
 Ile Ser Gln Lys Asp Cys Asp Cys Leu His Val Val Glu Pro Met  
 65 70 75  
 Pro Val Arg Gly Pro Asp Val Glu Ala Tyr Cys Leu Arg Cys Glu  
 80 85 90  
 Cys Lys Tyr Glu Glu Arg Ser Ser Val Thr Ile Lys Val Thr Ile  
 95 100 105  
 Ile Ile Tyr Leu Ser Ile Leu Gly Leu Leu Leu Leu Tyr Met Val  
 110 115 120  
 Tyr Leu Thr Leu Val Glu Pro Ile Leu Lys Arg Arg Leu Phe Gly  
 125 130 135

|             |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His         | Ala | Gln | Leu | Ile | Gln | Ser | Asp | Asp | Asp | Ile | Gly | Asp | His | Gln |
|             |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Pro         | Phe | Ala | Asn | Ala | His | Asp | Val | Leu | Ala | Arg | Ser | Arg | Ser | Arg |
|             |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ala         | Asn | Val | Leu | Asn | Lys | Val | Glu | Tyr | Ala | Gln | Gln | Arg | Trp | Lys |
|             |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Leu         | Gln | Val | Gln | Glu | Gln | Arg | Lys | Ser | Val | Phe | Asp | Arg | His | Val |
|             |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Val Leu Ser |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 419  
 <211> 681  
 <212> DNA  
 <213> Homo sapiens

<400> 419  
 gcacctgcga ccaccgtgag cagtcattggc gtactccaca gtgcagagag 50  
 tcgctctggc ttctgggctt gtcttggtc tgctgctgct gctgccaag 100  
 gccttctgt cccgcgggaa gcggcaggag ccgccgccga cacctgaagg 150  
 aaaattgggc cgatttccac ctatgatgca tcatcaccag gcacctcag 200  
 atggccagac tcttggggct cgtttccaga ggtctcacct tgccgaggca 250  
 tttgcaaagg ccaaaggatc aggtggaggt gctggaggag gaggtagtgg 300  
 aagaggtctg atggggcaga ttattccaat ctacggtttt gggatttttt 350  
 tatatatact gtacattcta tttaaggtaa gtagaatcat cctaatacata 400  
 ttacatcaat gaaaatctaa tatggcgata aaaatcattg tctacattaa 450  
 aacttcttat agttcataaa attatttcaa atccatcatc tctttaaatc 500  
 ctgcctcttc ttcatgaggt acttaggata gccattattt cagtttcaca 550  
 taagaatgtt tactcaatgt ttaagtgttt tgccccaaaa ttcacaacta 600  
 acaaggcaga actaggactt gaacatggat cttttggttc ttaatccagt 650  
 gagtataca attcaatgca ctcccctgcc a 681

<210> 420  
 <211> 128  
 <212> PRT  
 <213> Homo sapiens

<400> 420  
 Met Ala Tyr Ser Thr Val Gln Arg Val Ala Leu Ala Ser Gly Leu  
 1 5 10 15  
 Val Leu Ala Leu Ser Leu Leu Leu Pro Lys Ala Phe Leu Ser Arg  
 20 25 30  
 Gly Lys Arg Gln Glu Pro Pro Pro Thr Pro Glu Gly Lys Leu Gly  
 35 40 45





tgaattctac agtcttgggtg aagaacacga agaagactaa tccagagata 1050  
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ctccccaata attgtacggg aggtgatcga ggaagaagaa ccaagtgaaa 1150  
aatcagaggc cacctacatg accatgcacc cagtttggcc ttctctgagg 1200  
tcagatcgga acaactcact tgaaaaaaag tcaggtgggg gaatgccaaa 1250  
aacacagcaa gccttttgag aagaatggag agtcccttca tctcagcagc 1300  
ggtggagact ctctcctgtg tgtgtcctgg gccactctac cagtgatattc 1350  
agactcccg c tctccagct gtctcctgt ctcatgttt ggtcaataca 1400  
ctgaagatgg agaatttgga gcctggcaga gagactggac agctctggag 1450  
gaacaggcct gctgagggga ggggagcatg gacttggcct ctggagtggg 1500  
aactggccc tggaaccag gctgagctga gtggcctcaa accccccgtt 1550  
ggatcagacc ctctgtggg cagggttctt agtggatgag ttactgggaa 1600  
gaatcagaga taaaaaccaa cccaaatcaa 1630

<210> 422  
<211> 394  
<212> PRT  
<213> Homo sapiens

<400> 422  
Met Phe Cys Pro Leu Lys Leu Ile Leu Leu Pro Val Leu Leu Asp  
1 5 10 15  
Tyr Ser Leu Gly Leu Asn Asp Leu Asn Val Ser Pro Pro Glu Leu  
20 25 30  
Thr Val His Val Gly Asp Ser Ala Leu Met Gly Cys Val Phe Gln  
35 40 45  
Ser Thr Glu Asp Lys Cys Ile Phe Lys Ile Asp Trp Thr Leu Ser  
50 55 60  
Pro Gly Glu His Ala Lys Asp Glu Tyr Val Leu Tyr Tyr Tyr Ser  
65 70 75  
Asn Leu Ser Val Pro Ile Gly Arg Phe Gln Asn Arg Val His Leu  
80 85 90  
Met Gly Asp Ile Leu Cys Asn Asp Gly Ser Leu Leu Leu Gln Asp  
95 100 105  
Val Gln Glu Ala Asp Gln Gly Thr Tyr Ile Cys Glu Ile Arg Leu  
110 115 120  
Lys Gly Glu Ser Gln Val Phe Lys Lys Ala Val Val Leu His Val  
125 130 135  
Leu Pro Glu Glu Pro Lys Glu Leu Met Val His Val Gly Gly Leu  
140 145 150  
Ile Gln Met Gly Cys Val Phe Gln Ser Thr Glu Val Lys His Val

|   |     |     |     |  |     |
|---|-----|-----|-----|--|-----|
|   | 155 |     | 160 |  | 165 |
| Thr Lys Val Glu Trp Ile Phe Ser Gly Arg Arg Ala Lys Glu Glu | 170 | 175 | 180 |  |     |
| Ile Val Phe Arg Tyr Tyr His Lys Leu Arg Met Ser Val Glu Tyr | 185 | 190 | 195 |  |     |
| Ser Gln Ser Trp Gly His Phe Gln Asn Arg Val Asn Leu Val Gly | 200 | 205 | 210 |  |     |
| Asp Ile Phe Arg Asn Asp Gly Ser Ile Met Leu Gln Gly Val Arg | 215 | 220 | 225 |  |     |
| Glu Ser Asp Gly Gly Asn Tyr Thr Cys Ser Ile His Leu Gly Asn | 230 | 235 | 240 |  |     |
| Leu Val Phe Lys Lys Thr Ile Val Leu His Val Ser Pro Glu Glu | 245 | 250 | 255 |  |     |
| Pro Arg Thr Leu Val Thr Pro Ala Ala Leu Arg Pro Leu Val Leu | 260 | 265 | 270 |  |     |
| Gly Gly Asn Gln Leu Val Ile Ile Val Gly Ile Val Cys Ala Thr | 275 | 280 | 285 |  |     |
| Ile Leu Leu Leu Pro Val Leu Ile Leu Ile Val Lys Lys Thr Cys | 290 | 295 | 300 |  |     |
| Gly Asn Lys Ser Ser Val Asn Ser Thr Val Leu Val Lys Asn Thr | 305 | 310 | 315 |  |     |
| Lys Lys Thr Asn Pro Glu Ile Lys Glu Lys Pro Cys His Phe Glu | 320 | 325 | 330 |  |     |
| Arg Cys Glu Gly Glu Lys His Ile Tyr Ser Pro Ile Ile Val Arg | 335 | 340 | 345 |  |     |
| Glu Val Ile Glu Glu Glu Pro Ser Glu Lys Ser Glu Ala Thr     | 350 | 355 | 360 |  |     |
| Tyr Met Thr Met His Pro Val Trp Pro Ser Leu Arg Ser Asp Arg | 365 | 370 | 375 |  |     |
| Asn Asn Ser Leu Glu Lys Lys Ser Gly Gly Gly Met Pro Lys Thr | 380 | 385 | 390 |  |     |
| Gln Gln Ala Phe   |     |     |     |  |     |

<210> 423

<211> 963

<212> DNA

<213> Homo sapiens

<400> 423

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agataactgaa attgtaagag ttggaaacta catitttgcaa agtcattgaa 150

ctctgagctc agttgcagta ctcgggaagc catgcaggat gaagatggat 200

acatcacctt aaatattaaa actcggaaac cagctctcgt ctccgttggc 250  
 cctgcatcct cctcctggtg gcgtgtgatg gctttgattc tgctgatact 300  
 gtgcgtgggg atggttgtcg ggctggtggc tctggggatt tggctctgtca 350  
 tgcagcgcaa ttacctacaa gatgagaatg aaaatcgac aggaactctg 400  
 caacaattag caaagcgctt ctgtcaatat gtggtaaaac aatcagaact 450  
 aaagggcact ttcaaaggtc ataaatgcag cccctgtgac acaaactgga 500  
 gatattatgg agatagctgc tatgggttct tcaggcacia ottaacatgg 550  
 gaagagagta agcagtactg cactgacatg aatgctactc tcctgaagat 600  
 tgacaaccgg aacattgtgg agtacatcaa agccaggact catttaattc 650  
 gttgggtcgg attatctcgc cagaagtcga atgaggtctg gaagtgggag 700  
 gatggctcgg ttatctcaga aaatatgttt gagtttttgg aagatggaaa 750  
 aggaaatatg aattgtgctt attttcataa tgggaaaatg caccctacct 800  
 tctgtgagaa caaacattat ttaatgtgtg agaggaaggc tggcatgacc 850  
 aaggtggacc aactacctta atgcaaagag gtggacagga taacacagat 900  
 aagggtttta ttgtacaata aaagatatgt atgaatgcat cagtagctga 950  
 aaaaaaaaaa aaa 963

<210> 424  
 <211> 229  
 <212> PRT  
 <213> Homo sapiens

<400> 424  
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 1 5 10 15  
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 20 25 30  
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 35 40 45  
 Val Gly Leu Val Ala Leu Gly Ile Trp Ser Val Met Gln Arg Asn  
 50 55 60  
 Tyr Leu Gln Asp Glu Asn Glu Asn Arg Thr Gly Thr Leu Gln Gln  
 65 70 75  
 Leu Ala Lys Arg Phe Cys Gln Tyr Val Val Lys Gln Ser Glu Leu  
 80 85 90  
 Lys Gly Thr Phe Lys Gly His Lys Cys Ser Pro Cys Asp Thr Asn  
 95 100 105  
 Trp Arg Tyr Tyr Gly Asp Ser Cys Tyr Gly Phe Phe Arg His Asn  
 110 115 120  
 Leu Thr Trp Glu Glu Ser Lys Gln Tyr Cys Thr Asp Met Asn Ala

|                 |                     |                     |     |  |     |
|-----------------|---------------------|---------------------|-----|--|-----|
|                 | 125                 |                     | 130 |  | 135 |
| Thr Leu Leu Lys | Ile Asp Asn Arg Asn | Ile Val Glu Tyr Ile | Lys |  |     |
|                 | 140                 |                     | 145 |  | 150 |
| Ala Arg Thr His | Leu Ile Arg Trp Val | Gly Leu Ser Arg Gln | Lys |  |     |
|                 | 155                 |                     | 160 |  | 165 |
| Ser Asn Glu Val | Trp Lys Trp Glu Asp | Gly Ser Val Ile Ser | Glu |  |     |
|                 | 170                 |                     | 175 |  | 180 |
| Asn Met Phe Glu | Phe Leu Glu Asp Gly | Lys Gly Asn Met Asn | Cys |  |     |
|                 | 185                 |                     | 190 |  | 195 |
| Ala Tyr Phe His | Asn Gly Lys Met His | Pro Thr Phe Cys Glu | Asn |  |     |
|                 | 200                 |                     | 205 |  | 210 |
| Lys His Tyr Leu | Met Cys Glu Arg Lys | Ala Gly Met Thr Lys | Val |  |     |
|                 | 215                 |                     | 220 |  | 225 |

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<220>  
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<210> 426  
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 <212> DNA  
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<220>  
 <223> Synthetic oligonucleotide probe

<400> 426  
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<210> 427  
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 <212> DNA  
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<220>  
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<210> 428  
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<220>  
 <223> Synthetic oligonucleotide probe

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 <210> 429  
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 <210> 430  
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 <210> 431  
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 <210> 432  
 <211> 22  
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 <213> Artificial Sequence  
  
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 <210> 433  
 <211> 28  
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 <400> 433  
 ggccacctcc ttgagtcttc agttccct 28  
  
 <210> 434  
 <211> 24  
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<220>  
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<400> 434  
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<212> DNA  
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<220>  
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<400> 435  
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<210> 436  
<211> 24  
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<220>  
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<400> 436  
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<210> 437  
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<220>  
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<400> 437  
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<220>  
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<220>  
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 <210> 451  
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<400> 451  
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 <400> 455  
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 <400> 456  
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 <210> 457  
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<220>
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<210> 458
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<220>
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<400> 458
    aagatgcgcc aggcttctta 20

<210> 459
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<213> Artificial Sequence

<220>
<223> Synthetic oligonucleotide probe

<400> 459
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<210> 460
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<213> Artificial Sequence

<220>
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<400> 460
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<210> 461
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<220>
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<400> 461
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<210> 462
<211> 27
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<220>
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<400> 462
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<210> 463
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 <400> 468  
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<210> 469  
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 <220>  
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<400> 474
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<210> 475
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<400> 475
  accgcctacc gctgtgcca 20

<210> 476
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<220>
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<210> 477
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<220>
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<400> 477
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<210> 478
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<400> 478
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<210> 479
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<400> 479
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<210> 480
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 <210> 491  
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 <400> 491  
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<210> 492  
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<400> 492  
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<210> 493  
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<210> 494  
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gagccccctc ctttgctgaa gcccgagtgc ggagaagccc gggcaaacgc 200  
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aagaatcagt gtttgaaaat tattatgtga catattcatc aatgatatac 800  
cgtcagcagc agtcaggccg aggggtggtat ctgggtctga acaaagaagg 850  
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ttctgcctaa accactgaaa gtggccatgt acaaggagcc atcactgcac 950  
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aagtgtctct ggcgtgctga acggaggcaa atccatgagc cacaatgaat 1050  
caacgtagcc agtgagggca aaagaagggc tctgtaacag aaccttacct 1100  
ccaggtgctg ttgaattctt ctagcagtc ttcacccaaa agttcaaatt 1150  
tgtcagtgac atttaccaaa caaacaggca gagttcacta ttctatctgc 1200  
cattagacct tcttatcatc cataactaaag c 1231

<210> 495  
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<212> PRT  
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<400> 495  
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20 25 30  
Pro Ser Lys Gly Lys Thr Ser Cys Asp Lys Asn Lys Leu Asn Val  
35 40 45  
Phe Ser Arg Val Lys Leu Phe Gly Ser Lys Lys Arg Arg Arg Arg  
50 55 60  
Arg Pro Glu Pro Gln Leu Lys Gly Ile Val Thr Lys Leu Tyr Ser  
65 70 75  
Arg Gln Gly Tyr His Leu Gln Leu Gln Ala Asp Gly Thr Ile Asp  
80 85 90  
Gly Thr Lys Asp Glu Asp Ser Thr Tyr Thr Leu Phe Asn Leu Ile  
95 100 105  
Pro Val Gly Leu Arg Val Val Ala Ile Gln Gly Val Gln Thr Lys  
110 115 120  
Leu Tyr Leu Ala Met Asn Ser Glu Gly Tyr Leu Tyr Thr Ser Glu  
125 130 135  
Leu Phe Thr Pro Glu Cys Lys Phe Lys Glu Ser Val Phe Glu Asn  
140 145 150  
Tyr Tyr Val Thr Tyr Ser Ser Met Ile Tyr Arg Gln Gln Gln Ser  
155 160 165  
Gly Arg Gly Trp Tyr Leu Gly Leu Asn Lys Glu Gly Glu Ile Met  
170 175 180  
Lys Gly Asn His Val Lys Lys Asn Lys Pro Ala Ala His Phe Leu  
185 190 195  
Pro Lys Pro Leu Lys Val Ala Met Tyr Lys Glu Pro Ser Leu His  
200 205 210  
Asp Leu Thr Glu Phe Ser Arg Ser Gly Ser Gly Thr Pro Thr Lys

|   |     |  |     |  |     |
|---|-----|--|-----|--|-----|
|   | 215 |  | 220 |  | 225 |
| Ser Arg Ser Val Ser Gly Val Leu Asn Gly Gly Lys Ser Met Ser |     |  |     |  |     |
|   | 230 |  | 235 |  | 240 |
| His Asn Glu Ser Thr   |     |  |     |  |     |
|   | 245 |  |     |  |     |

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 gagccctgtc ttactgaacc tgggcaacct ggatattctg agacatattt 150  
 tggggggatt tcagtgaaaa aagtggggga tcccctccat ttagagtgtg 200  
 gcaaaggaaa aaacaccaag gttgggttcc ttctgacat tggcagtgcc 250  
 ccagtagggg tgggatgagc gaatatccc aaagctaaag tcccacaccc 300  
 tgtagattac aagagtggat ttggcaggag tgtgccccaa aatacagtgg 350  
 aaaggtgcct gaagatattt aaaccacgtc ttggaaaattt agtgggtctt 400  
 ggctttggga taggtgaagt gaggacagac actggagagg agggaaaggg 450  
 gacgttttca ataggaggca aaactcgagg gtgggatcca ctgaggagta 500  
 cataggctgc tggatctggt ggagccagca ctggggccac gggtggtaac 550  
 tggctgctgt ggaggggggt acgtgagggg ggggtctggg gcttatoctc 600  
 aggtcctgtg ggtggggcag cgagtcgggg cctgagcgtc aagagcatgc 650  
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 cggtttgggg gtgtctcctc ccggggcgct atggcggcgc tggccagtag 750  
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 aagcagctcc tcacctctgt gtccaagggt cgactgtgcg gggggcggcc 900  
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 aactgttctg ccgccagggt ttctacctcc aggcgaatcc cgacggaagc 1000  
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 acatggccat gaatgctgag ggactgctct acagttcgcc gcatttcaca 1150  
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 cgcctctgct ctctaccgcc agcgtcgttc tggccgggcc tggtagctcg 1250

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<210> 497  
<211> 225  
<212> PRT  
<213> Homo Sapien

<400> 497

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Ala | Ala | Leu | Ala | Ser | Ser | Leu | Ile | Arg | Gln | Lys | Arg | Glu | Val | 1   | 5   | 10  | 15 |
| Arg | Glu | Pro | Gly | Gly | Ser | Arg | Pro | Val | Ser | Ala | Gln | Arg | Arg | Val | 20  | 25  | 30  |    |
| Cys | Pro | Arg | Gly | Thr | Lys | Ser | Leu | Cys | Gln | Lys | Gln | Leu | Leu | Ile | 35  | 40  | 45  |    |
| Leu | Leu | Ser | Lys | Val | Arg | Leu | Cys | Gly | Gly | Arg | Pro | Ala | Arg | Pro | 50  | 55  | 60  |    |
| Asp | Arg | Gly | Pro | Glu | Pro | Gln | Leu | Lys | Gly | Ile | Val | Thr | Lys | Leu | 65  | 70  | 75  |    |
| Phe | Cys | Arg | Gln | Gly | Phe | Tyr | Leu | Gln | Ala | Asn | Pro | Asp | Gly | Ser | 80  | 85  | 90  |    |
| Ile | Gln | Gly | Thr | Pro | Glu | Asp | Thr | Ser | Ser | Phe | Thr | His | Phe | Asn | 95  | 100 | 105 |    |
| Leu | Ile | Pro | Val | Gly | Leu | Arg | Val | Val | Thr | Ile | Gln | Ser | Ala | Lys | 110 | 115 | 120 |    |
| Leu | Gly | His | Tyr | Met | Ala | Met | Asn | Ala | Glu | Gly | Leu | Leu | Tyr | Ser | 125 | 130 | 135 |    |
| Ser | Pro | His | Phe | Thr | Ala | Glu | Cys | Arg | Phe | Lys | Glu | Cys | Val | Phe | 140 | 145 | 150 |    |
| Glu | Asn | Tyr | Tyr | Val | Leu | Tyr | Ala | Ser | Ala | Leu | Tyr | Arg | Gln | Arg | 155 | 160 | 165 |    |
| Arg | Ser | Gly | Arg | Ala | Trp | Tyr | Leu | Gly | Leu | Asp | Lys | Glu | Gly | Gln | 170 | 175 | 180 |    |
| Val | Met | Lys | Gly | Asn | Arg | Val | Lys | Lys | Thr | Lys | Ala | Ala | Ala | His | 185 | 190 | 195 |    |
| Phe | Leu | Pro | Lys | Leu | Leu | Glu | Val | Ala | Met | Tyr | Gln | Glu | Pro | Ser | 200 | 205 | 210 |    |
| Leu | His | Ser | Val | Pro | Glu | Ala | Ser | Pro | Ser | Ser | Pro | Pro | Ala | Pro | 215 | 220 | 225 |    |

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<211> 744

<212> DNA  
 <213> Homo Sapien

<400> 498  
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 gcaagaaccg cgggctctgc aacggcaacc tggtagatat cttctccaaa 150  
 gtgcgcatct tgggcctcaa gaagcgcagg ttgcggcgcc aagatcccca 200  
 gctcaagggg atagtgaacca ggttatattg caggcaaggc tactacttgc 250  
 aaatgcaccc cgatggagct ctcatgggaa ccaaggatga cagcactaat 300  
 tctacactct tcaacctcat accagtggga ctacgtgttg ttgccatcca 350  
 gggagtga aaacaggggtgt atatagccat gaatggagaa gggtacctct 400  
 acccatcaga actttttacc cctgaatgca agtttaaaga atctgttttt 450  
 gaaaattatt atgtaatcta ctcatccatg ttgtacagac aacaggaatc 500  
 tggtagagcc tgggttttgg gattaaataa ggaagggcaa gctatgaaag 550  
 ggaacagagt aaagaaaacc aaaccagcag ctcattttct acccaagcca 600  
 ttggaagtgt ccatgtaccg agaaccatct ttgcatgatg ttggggaaac 650  
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 taatgaatgg aggcaaacca gtcaacaaga gtaagacaac atag 744

<210> 499  
 <211> 247  
 <212> PRT  
 <213> Homo Sapien

<400> 499  
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 35 40 45  
 Asp Ile Phe Ser Lys Val Arg Ile Phe Gly Leu Lys Lys Arg Arg  
 50 55 60  
 Leu Arg Arg Gln Asp Pro Gln Leu Lys Gly Ile Val Thr Arg Leu  
 65 70 75  
 Tyr Cys Arg Gln Gly Tyr Tyr Leu Gln Met His Pro Asp Gly Ala  
 80 85 90  
 Leu Asp Gly Thr Lys Asp Asp Ser Thr Asn Ser Thr Leu Phe Asn  
 95 100 105  
 Leu Ile Pro Val Gly Leu Arg Val Val Ala Ile Gln Gly Val Lys  
 110 115 120

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Gly | Leu | Tyr | Ile | Ala | Met | Asn | Gly | Glu | Gly | Tyr | Leu | Tyr | Pro |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ser | Glu | Leu | Phe | Thr | Pro | Glu | Cys | Lys | Phe | Lys | Glu | Ser | Val | Phe |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Glu | Asn | Tyr | Tyr | Val | Ile | Tyr | Ser | Ser | Met | Leu | Tyr | Arg | Gln | Gln |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Glu | Ser | Gly | Arg | Ala | Trp | Phe | Leu | Gly | Leu | Asn | Lys | Glu | Gly | Gln |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Ala | Met | Lys | Gly | Asn | Arg | Val | Lys | Lys | Thr | Lys | Pro | Ala | Ala | His |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Phe | Leu | Pro | Lys | Pro | Leu | Glu | Val | Ala | Met | Tyr | Arg | Glu | Pro | Ser |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Leu | His | Asp | Val | Gly | Glu | Thr | Val | Pro | Lys | Pro | Gly | Val | Thr | Pro |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Ser | Lys | Ser | Thr | Ser | Ala | Ser | Ala | Ile | Met | Asn | Gly | Gly | Lys | Pro |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Val | Asn | Lys | Ser | Lys | Thr | Thr |     |     |     |     |     |     |     |     |
|     |     |     |     | 245 |     |     |     |     |     |     |     |     |     |     |

<210> 500  
 <211> 2906  
 <212> DNA  
 <213> Homo Sapien

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 tggaaccgaa cgcaatggat aaactgattg tgcaagagag aaggaagaac 150  
 gaagcttttt cttgtgagcc ctggatctta acacaaatgt gtatatgtgc 200  
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 ccacccccaa aaaaaaggat gattggaaat gaagaaccga ggattcacia 350  
 agaaaaaagt atgttcattt ttctctataa aggagaaagt gagccaagga 400  
 gatatttttg gaatgaaaag tttggggcct ttttagtaaa gtaaagaact 450  
 ggtgtggtgg tgttttcott tctttttgaa tttcccacia gaggagagga 500  
 aattaataat acatctgcaa agaaatttca gagaagaaaa gttgaccgcg 550  
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 caaaaa 2906

<210> 501  
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 <212> PRT  
 <213> Homo Sapien

<400> 501  
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 Leu Ala Leu Gln Leu Leu Val Val Ala Gly Leu Val Arg Ala Gln  
 35 40 45  
 Thr Cys Pro Ser Val Cys Ser Cys Ser Asn Gln Phe Ser Lys Val  
 50 55 60  
 Ile Cys Val Arg Lys Asn Leu Arg Glu Val Pro Asp Gly Ile Ser  
 65 70 75  
 Thr Asn Thr Arg Leu Leu Asn Leu His Glu Asn Gln Ile Gln Ile  
 80 85 90  
 Ile Lys Val Asn Ser Phe Lys His Leu Arg His Leu Glu Ile Leu  
 95 100 105  
 Gln Leu Ser Arg Asn His Ile Arg Thr Ile Glu Ile Gly Ala Phe  
 110 115 120  
 Asn Gly Leu Ala Asn Leu Asn Thr Leu Glu Leu Phe Asp Asn Arg  
 125 130 135  
 Leu Thr Thr Ile Pro Asn Gly Ala Phe Val Tyr Leu Ser Lys Leu  
 140 145 150  
 Lys Glu Leu Trp Leu Arg Asn Asn Pro Ile Glu Ser Ile Pro Ser  
 155 160 165

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Ala | Phe | Asn | Arg | Ile | Pro | Ser | Leu | Arg | Arg | Leu | Asp | Leu | Gly |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Glu | Leu | Lys | Arg | Leu | Ser | Tyr | Ile | Ser | Glu | Gly | Ala | Phe | Glu | Gly |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Leu | Ser | Asn | Leu | Arg | Tyr | Leu | Asn | Leu | Ala | Met | Cys | Asn | Leu | Arg |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Glu | Ile | Pro | Asn | Leu | Thr | Pro | Leu | Ile | Lys | Leu | Asp | Glu | Leu | Asp |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Leu | Ser | Gly | Asn | His | Leu | Ser | Ala | Ile | Arg | Pro | Gly | Ser | Phe | Gln |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gly | Leu | Met | His | Leu | Gln | Lys | Leu | Trp | Met | Ile | Gln | Ser | Gln | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Gln | Val | Ile | Glu | Arg | Asn | Ala | Phe | Asp | Asn | Leu | Gln | Ser | Leu | Val |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Glu | Ile | Asn | Leu | Ala | His | Asn | Asn | Leu | Thr | Leu | Leu | Pro | His | Asp |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Leu | Phe | Thr | Pro | Leu | His | His | Leu | Glu | Arg | Ile | His | Leu | His | His |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Asn | Pro | Trp | Asn | Cys | Asn | Cys | Asp | Ile | Leu | Trp | Leu | Ser | Trp | Trp |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Ile | Lys | Asp | Met | Ala | Pro | Ser | Asn | Thr | Ala | Cys | Cys | Ala | Arg | Cys |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Asn | Thr | Pro | Pro | Asn | Leu | Lys | Gly | Arg | Tyr | Ile | Gly | Glu | Leu | Asp |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Gln | Asn | Tyr | Phe | Thr | Cys | Tyr | Ala | Pro | Val | Ile | Val | Glu | Pro | Pro |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Ala | Asp | Leu | Asn | Val | Thr | Glu | Gly | Met | Ala | Ala | Glu | Leu | Lys | Cys |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Arg | Ala | Ser | Thr | Ser | Leu | Thr | Ser | Val | Ser | Trp | Ile | Thr | Pro | Asn |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Gly | Thr | Val | Met | Thr | His | Gly | Ala | Tyr | Lys | Val | Arg | Ile | Ala | Val |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Leu | Ser | Asp | Gly | Thr | Leu | Asn | Phe | Thr | Asn | Val | Thr | Val | Gln | Asp |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Thr | Gly | Met | Tyr | Thr | Cys | Met | Val | Ser | Asn | Ser | Val | Gly | Asn | Thr |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Thr | Ala | Ser | Ala | Thr | Leu | Asn | Val | Thr | Ala | Ala | Thr | Thr | Thr | Pro |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Phe | Ser | Tyr | Phe | Ser | Thr | Val | Thr | Val | Glu | Thr | Met | Glu | Pro | Ser |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Gln | Asp | Glu | Ala | Arg | Thr | Thr | Asp | Asn | Asn | Val | Gly | Pro | Thr | Pro |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |





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<210> 503  
<211> 373  
<212> PRT  
<213> Homo Sapien

<400> 503  
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Val Thr Leu Pro Cys His His Gln Leu Gly Leu Pro Glu Lys Asp  
35 40 45  
Thr Leu Asp Ile Glu Trp Leu Leu Thr Asp Asn Glu Gly Asn Gln  
50 55 60  
Lys Val Val Ile Thr Tyr Ser Ser Arg His Val Tyr Asn Asn Leu  
65 70 75  
Thr Glu Glu Gln Lys Gly Arg Val Ala Phe Ala Ser Asn Phe Leu  
80 85 90  
Ala Gly Asp Ala Ser Leu Gln Ile Glu Pro Leu Lys Pro Ser Asp  
95 100 105  
Glu Gly Arg Tyr Thr Cys Lys Val Lys Asn Ser Gly Arg Tyr Val  
110 115 120  
Trp Ser His Val Ile Leu Lys Val Leu Val Arg Pro Ser Lys Pro  
125 130 135  
Lys Cys Glu Leu Glu Gly Glu Leu Thr Glu Gly Ser Asp Leu Thr  
140 145 150  
Leu Gln Cys Glu Ser Ser Ser Gly Thr Glu Pro Ile Val Tyr Tyr  
155 160 165  
Trp Gln Arg Ile Arg Glu Lys Glu Gly Glu Asp Glu Arg Leu Pro  
170 175 180  
Pro Lys Ser Arg Ile Asp Tyr Asn His Pro Gly Arg Val Leu Leu  
185 190 195  
Gln Asn Leu Thr Met Ser Tyr Ser Gly Leu Tyr Gln Cys Thr Ala  
200 205 210  
Gly Asn Glu Ala Gly Lys Glu Ser Cys Val Val Arg Val Thr Val  
215 220 225

|   |     |     |     |
|---|-----|-----|-----|
| Gln Tyr Val Gln Ser Ile Gly Met Val Ala Gly Ala Val Thr Gly     | 230 | 235 | 240 |
| Ile Val Ala Gly Ala Leu Leu Ile Phe Leu Leu Val Trp Leu Leu     | 245 | 250 | 255 |
| Ile Arg Arg Lys Asp Lys Glu Arg Tyr Glu Glu Glu Glu Arg Pro     | 260 | 265 | 270 |
| Asn Glu Ile Arg Glu Asp Ala Glu Ala Pro Lys Ala Arg Leu Val     | 275 | 280 | 285 |
| Lys Pro Ser Ser Ser Ser Ser Ser Gly Ser Arg Ser Ser Arg Ser Gly | 290 | 295 | 300 |
| Ser Ser Ser Thr Arg Ser Thr Ala Asn Ser Ala Ser Arg Ser Gln     | 305 | 310 | 315 |
| Arg Thr Leu Ser Thr Asp Ala Ala Pro Gln Pro Gly Leu Ala Thr     | 320 | 325 | 330 |
| Gln Ala Tyr Ser Leu Val Gly Pro Glu Val Arg Gly Ser Glu Pro     | 335 | 340 | 345 |
| Lys Lys Val His His Ala Asn Leu Thr Lys Ala Glu Thr Thr Pro     | 350 | 355 | 360 |
| Ser Met Ile Pro Ser Gln Ser Arg Ala Phe Gln Thr Val             | 365 | 370 |     |

<210> 504  
 <211> 3060  
 <212> DNA  
 <213> Homo Sapien

<400> 504  
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 ctctgtgctg gagtagtgga tttcgccaga agtttgagta tcactactcc 150  
 tgaagagatg attgaaaaag ccaaagggga aactgcctat ctgccatgca 200  
 aatttacgct tagtcccga gaccaggac cgctggacat cgagtggctg 250  
 atatcaccag ctgataatca gaaggtggat caagtgatta ttttatattc 300  
 tggagacaaa atttatgatg actactatcc agatctgaaa ggccgagtac 350  
 attttacgag taatgatctc aaatctggtg atgcatcaat aaatgtaacg 400  
 aatttacaac tgtcagatat tggcacatat cagtgcacaa tgaaaaaagc 450  
 tcctggtggt gcaaataaga agattcatct ggtagttctt gttaagcctt 500  
 caggtgctgag atgttacgtt gatggatctg aagaaattgg aagtgaacttt 550  
 aagataaaat gtgaacacaa agaaggttca cttccattac agtatgagtg 600  
 gcaaaaattg tctgactcac agaaaatgcc cacttcatgg ttagcagaaa 650  
 tgacttcatc tgttatatct gtaaaaaatg cctcttctga gtactctggg 700

|            |             |             |             |             |      |
|------------|-------------|-------------|-------------|-------------|------|
| acatacagct | gtacagtcag  | aaacagagtg  | ggctctgac   | agtgcctggt  | 750  |
| gcgtctaaac | gttgccctc   | cttcaaataa  | agctggacta  | attgcaggag  | 800  |
| ccattatagg | aactttgctt  | gctctagcgc  | tcattgggtct | tatcatcttt  | 850  |
| tgctgtcgta | aaaagcgcag  | agaagaaaaa  | tatgaaaagg  | aagttcatca  | 900  |
| cgatatcagg | gaagatgtgc  | cacctccaaa  | gagccgtacg  | tccactgcc   | 950  |
| gaagctacat | cggcagtaat  | cattcatccc  | tgggggtccat | gtctccttcc  | 1000 |
| aacatggaag | gatattccaa  | gactcagtat  | aaccaagtac  | caagtgaaga  | 1050 |
| ctttgaacgc | actcctcaga  | gtccgactct  | cccacctgct  | aagttcaagt  | 1100 |
| acccttacia | gactgatgga  | attacagttg  | tataaatatg  | gactactgaa  | 1150 |
| gaatctgaag | tattgtatta  | tttgacttta  | ttttaggcct  | ctagtaaaga  | 1200 |
| cttaaagtgt | ttttaaaaaa  | agcacaaggc  | acagagatta  | gagcagctgt  | 1250 |
| aagaacacat | ctacttttat  | caatggcatt  | agacatgtaa  | gtcagatgtc  | 1300 |
| atgtcaaaat | tagtacgagc  | caaattcttt  | gttaaaaaac  | cctatgtata  | 1350 |
| gtgacactga | tagttaaaag  | atgttttatt  | atattttcaa  | taactaccac  | 1400 |
| taacaaattt | ttaacttttc  | atatgcatat  | tctgatatgt  | ggtcttttag  | 1450 |
| gaaaagtatg | gttaatagtt  | gattttttcaa | aggaaatfff  | aaaattctta  | 1500 |
| cgttctgttt | aatgtttttg  | ctatttagtt  | aaatacattg  | aaggggaaata | 1550 |
| cccgttcttt | tcccctttta  | tgcacacaac  | agaaacacgc  | gttgtcatgc  | 1600 |
| ctcaaactat | tttttatattg | caactacatg  | atttcacaca  | attctcttaa  | 1650 |
| acaacgacat | aaaatagatt  | tccttgtata  | taaataactt  | acatacgctc  | 1700 |
| cataaagtaa | attctcaaag  | gtgctagaac  | aaatcgtcca  | cttctacagt  | 1750 |
| gttctcgtat | ccaacagagt  | tgatgcacaa  | tatataaata  | ctcaagtcca  | 1800 |
| atattaaaaa | cttaggcact  | tgactaactt  | taataaaatt  | tctcaaacta  | 1850 |
| tatcaatatc | taaagtgc    | atatttttta  | agaaagatta  | ttctcaataa  | 1900 |
| cttctataaa | aataagtttg  | atggtttggc  | ccatctaact  | tcactactat  | 1950 |
| tagtaagaac | ttttaacttt  | taatgtgtag  | taagggttat  | tctacctttt  | 2000 |
| tctcaacatg | acaccaacac  | aatcaaaaac  | gaagttagtg  | aggtgctaac  | 2050 |
| atgtgaggat | taatccagtg  | attccggtca  | caatgcattc  | caggaggagg  | 2100 |
| tacccatgtc | actggaattg  | ggcgatatgg  | tttatttttt  | cttccctgat  | 2150 |
| ttggataacc | aaatggaaca  | ggaggaggat  | agtgattctg  | atggccattc  | 2200 |
| cctcgataca | ttcctggctt  | ttttctgggc  | aaagggtgcc  | acattggaag  | 2250 |
| aggtggaat  | ataagttctg  | aaatctgtag  | ggaagagaac  | acattaagtt  | 2300 |

aattcaaagg aaaaaatcat catctatggt ccagattttct cattaaagac 2350  
 aaagttaccc acaacactga gatcacatct aagtgacact cctattgtca 2400  
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 aggtgaccaa tgttttctga atgcataaag aaatgaataa actcaaacac 2500  
 agtacttcct aaacaacttc aaccaaaaaa gaccaaaca tggaacgaat 2550  
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 ctaagccagg agtcacttgg aggcttttaa atacaaaaca ttggagctgg 2650  
 aggccattat ccttagcaaa ctaatgcaga aacagaaaat caactaccgc 2700  
 atgtttctcac ttataagtgg gaggtaatga taagaactta tgaacacaaa 2750  
 gaaggaaaca atagacattg gagtctatgt gagaggggag ggtgggagaa 2800  
 ggaaaaggag cagaaaagat aactattgag tactgccttc acacctgggt 2850  
 gatgaaataa tatgtacaac aaatccctgt gacacatggt tacctatgga 2900  
 acaaaccttc atgtgtatcc ctaaacctaa aataaaagt aaataaaagt 2950  
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 aaataaaagt aaataaaagt aaataaaagt aaataaaagt aaataaaagt 3050  
 aaataaaagt 3060

<210> 505  
 <211> 352  
 <212> PRT  
 <213> Homo Sapien

<400> 505  
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 Phe Ala Arg Ser Leu Ser Ile Thr Thr Pro Glu Glu Met Ile Glu  
 20 25 30  
 Lys Ala Lys Gly Glu Thr Ala Tyr Leu Pro Cys Lys Phe Thr Leu  
 35 40 45  
 Ser Pro Glu Asp Gln Gly Pro Leu Asp Ile Glu Trp Leu Ile Ser  
 50 55 60  
 Pro Ala Asp Asn Gln Lys Val Asp Gln Val Ile Ile Leu Tyr Ser  
 65 70 75  
 Gly Asp Lys Ile Tyr Asp Asp Tyr Tyr Pro Asp Leu Lys Gly Arg  
 80 85 90  
 Val His Phe Thr Ser Asn Asp Leu Lys Ser Gly Asp Ala Ser Ile  
 95 100 105  
 Asn Val Thr Asn Leu Gln Leu Ser Asp Ile Gly Thr Tyr Gln Cys  
 110 115 120  
 Lys Val Lys Lys Ala Pro Gly Val Ala Asn Lys Lys Ile His Leu



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 ttctgccctc ctttgcctggc gacagcctct caaatgcaga tggttgtgct 350  
 cccttgccctg ggtttttaccc tgcttctctg gagccaggta tcagggggccc 400  
 agggccaaga attccacttt gggccctgcc aagtgaaggg ggttggtccc 450  
 cagaaactgt ggggaagcctt ctgggctgtg aaagacacta tgcaagctca 500  
 ggataacatc acgagtggcc ggctgctgca gcaggagggt ctgcagaacg 550  
 tctcggatgc tgagagctgt taccttgtcc acaccctgct ggagttctac 600  
 ttgaaaactg ttttcaaaaa ccaccacaat agaacagttg aagtcaggac 650  
 tctgaagtca ttctctactc tggccaacaa ctttgttctc atcgtgtcac 700  
 aactgcaacc cagtcaagaa aatgagatgt tttccatcag agacagtgc 750  
 cacaggcggt ttctgctatt ccggagagca ttcaaacagt tggacgtaga 800  
 agcagctctg accaaagccc ttggggaagt ggacattctt ctgacctgga 850  
 tgcagaaatt ctacaagctc tgaatgtcta gaccaggacc tccctcccc 900  
 tggcactggt ttgttccctg tgtcatttca aacagtctcc cttcctatgc 950  
 tgttactggt acacttcaag cccttggcca tgggtcccat tcttggccca 1000  
 ggattattgt caaagaagtc attctttaag cagcgccagt gacagtcagg 1050  
 gaaggtgcct ctggatgctg tgaagagtct acagagaaga ttcttgtatt 1100  
 tattacaact ctatttaatt aatgtcagta tttcaactga agttctat 1150  
 atttgtgaga ctgtaagtta catgaaggca gcagaatatt gtgccccatg 1200  
 cttctttacc cctcacaatc cttgccacag tgtggggcag tggatgggtg 1250  
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 ttgttaaaaa acagagaggg atgcttggat gtaaaactga acttcagagc 1350  
 atgaaaatca cactgtcttc tgatatctgc agggacagag cattgggggtg 1400  
 ggggtaaggt gcatctgttt gaaaagtaaa cgataaaatg tggattaaag 1450  
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 tcgccagctc accccatcat ccctttccct tgggtgccctc cttttttttt 1550  
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 gctgatggtg acattgcacc tggatgtact atccaatctg tgatgacatt 1650  
 ccctgctaataaaaagacaac ataactccaa aaaaaaaaaa aaaaaaaaaa 1700  
 aaaaa 1705

<210> 507  
 <211> 206  
 <212> PRT



<213> Homo Sapien

<400> 507

Met Asn Phe Gln Gln Arg Leu Gln Ser Leu Trp Thr Leu Ala Arg  
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Pro Phe Cys Pro Pro Leu Leu Ala Thr Ala Ser Gln Met Gln Met  
20 25 30  
Val Val Leu Pro Cys Leu Gly Phe Thr Leu Leu Leu Trp Ser Gln  
35 40 45  
Val Ser Gly Ala Gln Gly Gln Glu Phe His Phe Gly Pro Cys Gln  
50 55 60  
Val Lys Gly Val Val Pro Gln Lys Leu Trp Glu Ala Phe Trp Ala  
65 70 75  
Val Lys Asp Thr Met Gln Ala Gln Asp Asn Ile Thr Ser Ala Arg  
80 85 90  
Leu Leu Gln Gln Glu Val Leu Gln Asn Val Ser Asp Ala Glu Ser  
95 100 105  
Cys Tyr Leu Val His Thr Leu Leu Glu Phe Tyr Leu Lys Thr Val  
110 115 120  
Phe Lys Asn His His Asn Arg Thr Val Glu Val Arg Thr Leu Lys  
125 130 135  
Ser Phe Ser Thr Leu Ala Asn Asn Phe Val Leu Ile Val Ser Gln  
140 145 150  
Leu Gln Pro Ser Gln Glu Asn Glu Met Phe Ser Ile Arg Asp Ser  
155 160 165  
Ala His Arg Arg Phe Leu Leu Phe Arg Arg Ala Phe Lys Gln Leu  
170 175 180  
Asp Val Glu Ala Ala Leu Thr Lys Ala Leu Gly Glu Val Asp Ile  
185 190 195  
Leu Leu Thr Trp Met Gln Lys Phe Tyr Lys Leu  
200 205

<210> 508

<211> 924

<212> DNA

<213> Homo Sapien

<400> 508

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cgggtctcagg agatgtctga tttccacaga catgcaccat atagaagaga 150  
gtttccaaga aatcaaaaaga gccatccaag ctaaggacac cttcccaaatt 200  
gtcactatcc tgtccacatt ggagactctg cagatcatta agcccttaga 250  
tgtgtgctgc gtgaccaaga acctcctggc gttctacgtg gacaggggtgt 300

tcaaggatca tcaggagcca aacccccaaaa tcttgagaaa aatcagcagc 350  
 attgccaact ctttcctcta catgcagaaa actctgcggc aatgtcagga 400  
 acagaggcag tgtcactgca ggcaggaagc caccaatgcc accagagtca 450  
 tccatgacaa ctatgatcag ctggaggtcc acgctgctgc cattaatatcc 500  
 ctgggagagc tcgacgtctt tctagcctgg attaataaga atcatgaagt 550  
 aatgtttctca gcttgatgac aaggaacctg tatagtgatc cagggatgaa 600  
 caccacctgt goggtttact gtgggagaca gccaccttg aaggggaagg 650  
 agatggggaa ggcccccttg agctgaaagt cccactggct ggctcaggc 700  
 tgtcttattc cgcttgaaaa taggcaaaaa gtctactgtg gtatttgtaa 750  
 taaactctat ctgctgaaag ggcctgcagg ccatcctggg agtaaagggc 800  
 tgccttccca tctaatttat tgtaaagtca tatagtccat gtctgtgatg 850  
 tgagccaagt gatatcctgt agtacacatt gtactgagtg gtttttctga 900  
 ataaattcca tattttacct atga 924

<210> 509

<211> 177

<212> PRT

<213> Homo Sapien

<400> 509

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Lys | Leu | Gln | Cys | Val | Ser | Leu | Trp | Leu | Leu | Gly | Thr | Ile | Leu | 1   | 5   | 10  | 15 |
| Ile | Leu | Cys | Ser | Val | Asp | Asn | His | Gly | Leu | Arg | Arg | Cys | Leu | Ile | 20  | 25  | 30  |    |
| Ser | Thr | Asp | Met | His | His | Ile | Glu | Glu | Ser | Phe | Gln | Glu | Ile | Lys | 35  | 40  | 45  |    |
| Arg | Ala | Ile | Gln | Ala | Lys | Asp | Thr | Phe | Pro | Asn | Val | Thr | Ile | Leu | 50  | 55  | 60  |    |
| Ser | Thr | Leu | Glu | Thr | Leu | Gln | Ile | Ile | Lys | Pro | Leu | Asp | Val | Cys | 65  | 70  | 75  |    |
| Cys | Val | Thr | Lys | Asn | Leu | Leu | Ala | Phe | Tyr | Val | Asp | Arg | Val | Phe | 80  | 85  | 90  |    |
| Lys | Asp | His | Gln | Glu | Pro | Asn | Pro | Lys | Ile | Leu | Arg | Lys | Ile | Ser | 95  | 100 | 105 |    |
| Ser | Ile | Ala | Asn | Ser | Phe | Leu | Tyr | Met | Gln | Lys | Thr | Leu | Arg | Gln | 110 | 115 | 120 |    |
| Cys | Gln | Glu | Gln | Arg | Gln | Cys | His | Cys | Arg | Gln | Glu | Ala | Thr | Asn | 125 | 130 | 135 |    |
| Ala | Thr | Arg | Val | Ile | His | Asp | Asn | Tyr | Asp | Gln | Leu | Glu | Val | His | 140 | 145 | 150 |    |
| Ala | Ala | Ala | Ile | Lys | Ser | Leu | Gly | Glu | Leu | Asp | Val | Phe | Leu | Ala |     |     |     |    |

155

160

165

Trp Ile Asn Lys Asn His Glu Val Met Phe Ser Ala  
170 175

&lt;210&gt; 510

&lt;211&gt; 996

&lt;212&gt; DNA

&lt;213&gt; Homo Sapien

&lt;400&gt; 510

cccgtgccaa gaggtagcga agtaccgcct atagagtcta tagggccact 50  
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cacatagcat ttaggtgaca ctatagaata acatccactt tgcctttctc 150  
tccacaggtg tccactccca ggtccaactg cacctcggtt ctatcgataa 200  
tctcagcacc agccactcag agcagggcac gatgttgggg gcccgccca 250  
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gcctatccca atgcctcccc actgctcggc tccagctggg gtggcctgat 350  
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agaatggcca tgtggatggc gcaccccatc agaccatcta cagtgccctg 450  
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ccacggcggc acacccggag cgccgaggac gactcggagc gggaccccct 800  
gaacgtgctg aagccccggg cccggatgac cccggccccg gcctcctgtt 850  
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ttaggggtgg tcagggcgcg tcgagtgaac acgcacgctg ggggaacggg 950  
cccgaaggc tgccgcccct tcgccaagtt catctagggt cgctgg 996

&lt;210&gt; 511

&lt;211&gt; 251

&lt;212&gt; PRT

&lt;213&gt; Homo Sapien

&lt;400&gt; 511

Met Leu Gly Ala Arg Leu Arg Leu Trp Val Cys Ala Leu Cys Ser  
1 5 10 15  
Val Cys Ser Met Ser Val Leu Arg Ala Tyr Pro Asn Ala Ser Pro  
20 25 30



ggggagccaa gagaatttcc cctgcaagag agaccaggag tttcacaaaa 350  
 acatctocca acttcatggt gctgatcgcc acctccgtgg agacatcagc 400  
 cgccagtggc agccccgagg gagctggaat gaccacagtt cagaccatca 450  
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 cacctccaca gaagctaagg gcctgtcctc agagagcagt gcctcttccg 600  
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 cccttcagag acaccgacca tggacatgc aaccaagggg cccttcccca 1350  
 ccagcaggga ccctcttcct tctgtccctc cgactacaac caacagcagc 1400  
 cgagggacga acagcacctt agccaagatc acaacctcag cgaagaccac 1450  
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 cagcagctcc accgggaact ccacgcccac ggcctcact tccaggtctc 1650  
 cttactgctg gtcaggagag gctaacggac atcagctgca gccaggcatg 1700  
 tcccgtatgc caaaagaggg tgctgcccct agcctggggc cccaccgaca 1750  
 gactgcagct gcgttactgt gctgagaggt acccagaagg ttcctatgaa 1800  
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 tcacatccac cggagtgtat gtatggggag gggcttcacc tgttcccaga 1900

gggtgtccttg gactcacctt ggcacatgtt ctgtgtttca gtaaagagag 1950  
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 gtggcccaaa aaaaa 2015

<210> 513  
 <211> 482  
 <212> PRT  
 <213> Homo Sapien

<400> 513  
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 20 25 30  
 Arg Ala Asp Thr Ala Met Thr Thr Asp Asp Thr Glu Val Pro Ala  
 35 40 45  
 Met Thr Leu Ala Pro Gly His Ala Ala Leu Glu Thr Gln Thr Leu  
 50 55 60  
 Ser Ala Glu Thr Ser Ser Arg Ala Ser Thr Pro Ala Gly Pro Ile  
 65 70 75  
 Pro Glu Ala Glu Thr Arg Gly Ala Lys Arg Ile Ser Pro Ala Arg  
 80 85 90  
 Glu Thr Arg Ser Phe Thr Lys Thr Ser Pro Asn Phe Met Val Leu  
 95 100 105  
 Ile Ala Thr Ser Val Glu Thr Ser Ala Ala Ser Gly Ser Pro Glu  
 110 115 120  
 Gly Ala Gly Met Thr Thr Val Gln Thr Ile Thr Gly Ser Asp Pro  
 125 130 135  
 Glu Glu Ala Ile Phe Asp Thr Leu Cys Thr Asp Asp Ser Ser Glu  
 140 145 150  
 Glu Ala Lys Thr Leu Thr Met Asp Ile Leu Thr Leu Ala His Thr  
 155 160 165  
 Ser Thr Glu Ala Lys Gly Leu Ser Ser Glu Ser Ser Ala Ser Ser  
 170 175 180  
 Asp Gly Pro His Pro Val Ile Thr Pro Ser Arg Ala Ser Glu Ser  
 185 190 195  
 Ser Ala Ser Ser Asp Gly Pro His Pro Val Ile Thr Pro Ser Arg  
 200 205 210  
 Ala Ser Glu Ser Ser Ala Ser Ser Asp Gly Pro His Pro Val Ile  
 215 220 225  
 Thr Pro Ser Trp Ser Pro Gly Ser Asp Val Thr Leu Leu Ala Glu  
 230 235 240  
 Ala Leu Val Thr Val Thr Asn Ile Glu Val Ile Asn Cys Ser Ile  
 245 250 255

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Thr | Glu | Ile | Glu | Thr | Thr | Thr | Ser | Ser | Ile | Pro | Gly | Ala | Ser | Asp |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Ile | Asp | Leu | Ile | Pro | Thr | Glu | Gly | Val | Lys | Ala | Ser | Ser | Thr | Ser |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Asp | Pro | Pro | Ala | Leu | Pro | Asp | Ser | Thr | Glu | Ala | Lys | Pro | His | Ile |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Thr | Glu | Val | Thr | Ala | Ser | Ala | Glu | Thr | Leu | Ser | Thr | Ala | Gly | Thr |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Thr | Glu | Ser | Ala | Ala | Pro | His | Ala | Thr | Val | Gly | Thr | Pro | Leu | Pro |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |
| Thr | Asn | Ser | Ala | Thr | Glu | Arg | Glu | Val | Thr | Ala | Pro | Gly | Ala | Thr |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |
| Thr | Leu | Ser | Gly | Ala | Leu | Val | Thr | Val | Ser | Arg | Asn | Pro | Leu | Glu |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Glu | Thr | Ser | Ala | Leu | Ser | Val | Glu | Thr | Pro | Ser | Tyr | Val | Lys | Val |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Ser | Gly | Ala | Ala | Pro | Val | Ser | Ile | Glu | Ala | Gly | Ser | Ala | Val | Gly |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |
| Lys | Thr | Thr | Ser | Phe | Ala | Gly | Ser | Ser | Ala | Ser | Ser | Tyr | Ser | Pro |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |
| Ser | Glu | Ala | Ala | Leu | Lys | Asn | Phe | Thr | Pro | Ser | Glu | Thr | Pro | Thr |  |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |  |
| Met | Asp | Ile | Ala | Thr | Lys | Gly | Pro | Phe | Pro | Thr | Ser | Arg | Asp | Pro |  |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |  |
| Leu | Pro | Ser | Val | Pro | Pro | Thr | Thr | Thr | Asn | Ser | Ser | Arg | Gly | Thr |  |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |  |
| Asn | Ser | Thr | Leu | Ala | Lys | Ile | Thr | Thr | Ser | Ala | Lys | Thr | Thr | Met |  |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |  |
| Lys | Pro | Gln | Gln | Pro | Arg | Pro | Arg | Leu | Pro | Gly | Arg | Gly | Arg | Pro |  |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |

Gln Thr

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 <211> 2284  
 <212> DNA  
 <213> Homo Sapien

<400> 514  
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 ggcgcccggg tcctctcgac gccagagaga aatctcatca tctgtgcagc 150  
 cttcttaaag caaactaaga ccagagggag gattatcctt gacctttgaa 200  
 gaccaaaact aaactgaaat ttaaatgtt cttcggggga gaaggagct 250

tgacttacac tttggaata atttgcttcc tgacactaag gctgtctgct 300  
 agtcagaatt gcctcaaaaa gagtctagaa gatgttgtca ttgacatcca 350  
 gtcattctctt tctaagggaa tcagaggcaa tgagcccgtata tctacttcaa 400  
 ctcaagaaga ctgcattaat tcttgctggt caacaaaaaa catatcaggg 450  
 gacaaagcat gtaacttgat gatcttcgac actcgaaaaa cagctagaca 500  
 acccaactgc tacctatctt tctgtcccaa cgaggaagcc tgtccattga 550  
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 tttctctga tcaagaaata gctcatctgc tgctgaaaaa tgtgagtgcg 900  
 ctcccagcta cgggtggcagt tgcttctcca cataccacct cggctactcc 950  
 aaagcccgcc acccttctac ccaccaatgc ttcagtgcaca cttctgga 1000  
 cttcccagcc acagctggcc accacagctc cacctgtaac cactgtcact 1050  
 totcagctc ccacgacct catttctaca gtttttacac gggctgcggc 1100  
 tacactccaa gcaatggcta caacagcagt tctgactacc acctttcagg 1150  
 cacctacgga ctcgaaaggc agcttagaaa ccataccgtt tacagaaatc 1200  
 tccaacttaa ctttgaacac agggaatgtg tataacccta ctgcactttc 1250  
 tatgtcaaat gtggagtctt ccactatgaa taaaactgct tctggaag 1300  
 gtagggaggc cagtccaggc agttcctccc agggcagtggt tccagaaaat 1350  
 cagtaaggcc ttccatttga aaaatggctt cttatcgggt ccctgctctt 1400  
 tgggtgtcctg ttctggtga taggcctcgt cctcctgggt agaatccttt 1450  
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 gggatctatg tggacatcta aggatggaac tcggtgtctc ttaattcatt 1550  
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 agcaggaggt tgtatcttga agacaggaaa atgccccctt ctgctttcct 1650  
 tttttttttt ggagacagag tottgctctg ttgccaggc tggagtgcag 1700  
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 acacctgggt gatcttttga ttttagtag agacggggtt tcacatggt 1850



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 gttttatggt tgggttttga gaaggaatga agtgggaacc aaattaggta 2000  
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 tatgcaaaga aacagggttag gacatctagg ttccaattca ttcacattct 2150  
 tggttccaga taaaatcaac tgtttatatc aatttctaataa ggatttgctt 2200  
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<210> 515  
 <211> 431  
 <212> PRT  
 <213> Homo Sapien

<400> 515  
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 Lys Lys Ser Leu Glu Asp Val Val Ile Asp Ile Gln Ser Ser Leu  
 35 40 45  
 Ser Lys Gly Ile Arg Gly Asn Glu Pro Val Tyr Thr Ser Thr Gln  
 50 55 60  
 Glu Asp Cys Ile Asn Ser Cys Cys Ser Thr Lys Asn Ile Ser Gly  
 65 70 75  
 Asp Lys Ala Cys Asn Leu Met Ile Phe Asp Thr Arg Lys Thr Ala  
 80 85 90  
 Arg Gln Pro Asn Cys Tyr Leu Phe Phe Cys Pro Asn Glu Glu Ala  
 95 100 105  
 Cys Pro Leu Lys Pro Ala Lys Gly Leu Met Ser Tyr Arg Ile Ile  
 110 115 120  
 Thr Asp Phe Pro Ser Leu Thr Arg Asn Leu Pro Ser Gln Glu Leu  
 125 130 135  
 Pro Gln Glu Asp Ser Leu Leu His Gly Gln Phe Ser Gln Ala Val  
 140 145 150  
 Thr Pro Leu Ala His His His Thr Asp Tyr Ser Lys Pro Thr Asp  
 155 160 165  
 Ile Ser Trp Arg Asp Thr Leu Ser Gln Lys Phe Gly Ser Ser Asp  
 170 175 180  
 His Leu Glu Lys Leu Phe Lys Met Asp Glu Ala Ser Ala Gln Leu  
 185 190 195

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Ala | Tyr | Lys | Glu | Lys | Gly | His | Ser | Gln | Ser | Ser | Gln | Phe | Ser |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Ser | Asp | Gln | Glu | Ile | Ala | His | Leu | Leu | Pro | Glu | Asn | Val | Ser | Ala |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Leu | Pro | Ala | Thr | Val | Ala | Val | Ala | Ser | Pro | His | Thr | Thr | Ser | Ala |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Thr | Pro | Lys | Pro | Ala | Thr | Leu | Leu | Pro | Thr | Asn | Ala | Ser | Val | Thr |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Pro | Ser | Gly | Thr | Ser | Gln | Pro | Gln | Leu | Ala | Thr | Thr | Ala | Pro | Pro |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Val | Thr | Thr | Val | Thr | Ser | Gln | Pro | Pro | Thr | Thr | Leu | Ile | Ser | Thr |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Val | Phe | Thr | Arg | Ala | Ala | Ala | Thr | Leu | Gln | Ala | Met | Ala | Thr | Thr |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Ala | Val | Leu | Thr | Thr | Thr | Phe | Gln | Ala | Pro | Thr | Asp | Ser | Lys | Gly |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Ser | Leu | Glu | Thr | Ile | Pro | Phe | Thr | Glu | Ile | Ser | Asn | Leu | Thr | Leu |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |
| Asn | Thr | Gly | Asn | Val | Tyr | Asn | Pro | Thr | Ala | Leu | Ser | Met | Ser | Asn |  |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |  |
| Val | Glu | Ser | Ser | Thr | Met | Asn | Lys | Thr | Ala | Ser | Trp | Glu | Gly | Arg |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Glu | Ala | Ser | Pro | Gly | Ser | Ser | Ser | Gln | Gly | Ser | Val | Pro | Glu | Asn |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Gln | Tyr | Gly | Leu | Pro | Phe | Glu | Lys | Trp | Leu | Leu | Ile | Gly | Ser | Leu |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |
| Leu | Phe | Gly | Val | Leu | Phe | Leu | Val | Ile | Gly | Leu | Val | Leu | Leu | Gly |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |
| Arg | Ile | Leu | Ser | Glu | Ser | Leu | Arg | Arg | Lys | Arg | Tyr | Ser | Arg | Leu |  |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |  |
| Asp | Tyr | Leu | Ile | Asn | Gly | Ile | Tyr | Val | Asp | Ile |     |     |     |     |  |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     |     |  |

<210> 516  
 <211> 2749  
 <212> DNA  
 <213> Homo Sapien

<220>  
 <221> unsure  
 <222> 1869, 1887  
 <223> unknown base

<400> 516  
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 ttgcctgctg ctcccaggtt atgaagccct ggagggocca gaggaaatca 100

gcggggttcga aggggacact gtgtccctgc agtgcaccta caggggaagag 150  
ctgagggacc accggaagta ctggtgcagg aagggtggga tcctcttctc 200  
tcgctgctct ggcaccatct atgcagaaga agaaggccag gagacaatga 250  
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accctgtgga acctcaccct gcaagacgct ggggagtact ggtgtgggggt 350  
cgaaaaacgg ggccccgatg agtctttact gatctctctg ttctgtctttc 400  
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 gtaaagtagc acaactacta ttttttttct ttttccatta ttattgtttt 2150  
 ttaagacaga atctcgtgct gctgccagg ctggagtgca gtggcacgat 2200  
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 agagttgttc agtatgcaaa acttggaag atggaggaga aaaagaaaag 2500  
 gaagaaaaaa atgtcaccca tagtctcacc agagactatc attatttcgt 2550  
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 gaccttttta taaataaaat gttcatcagc tgcataaaaa aaaaaaaaaa 2749

<210> 517  
 <211> 332  
 <212> PRT  
 <213> Homo Sapien

<400> 517  
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 Asp Thr Val Ser Leu Gln Cys Thr Tyr Arg Glu Glu Leu Arg Asp  
 35 40 45  
 His Arg Lys Tyr Trp Cys Arg Lys Gly Gly Ile Leu Phe Ser Arg  
 50 55 60  
 Cys Ser Gly Thr Ile Tyr Ala Glu Glu Gly Gln Glu Thr Met  
 65 70 75

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Lys | Gly | Arg | Val | Ser | Ile | Arg | Asp | Ser | Arg | Gln | Glu | Leu | Ser | Leu |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Ile | Val | Thr | Leu | Trp | Asn | Leu | Thr | Leu | Gln | Asp | Ala | Gly | Glu | Tyr |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Trp | Cys | Gly | Val | Glu | Lys | Arg | Gly | Pro | Asp | Glu | Ser | Leu | Leu | Ile |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Ser | Leu | Phe | Val | Phe | Pro | Gly | Pro | Cys | Cys | Pro | Pro | Ser | Pro | Ser |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Pro | Thr | Phe | Gln | Pro | Leu | Ala | Thr | Thr | Arg | Leu | Gln | Pro | Lys | Ala |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Lys | Ala | Gln | Gln | Thr | Gln | Pro | Pro | Gly | Leu | Thr | Ser | Pro | Gly | Leu |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Tyr | Pro | Ala | Ala | Thr | Thr | Ala | Lys | Gln | Gly | Lys | Thr | Gly | Ala | Glu |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Ala | Pro | Pro | Leu | Pro | Gly | Thr | Ser | Gln | Tyr | Gly | His | Glu | Arg | Thr |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Ser | Gln | Tyr | Thr | Gly | Thr | Ser | Pro | His | Pro | Ala | Thr | Ser | Pro | Pro |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Ala | Gly | Ser | Ser | Arg | Pro | Pro | Met | Gln | Leu | Asp | Ser | Thr | Ser | Ala |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Glu | Asp | Thr | Ser | Pro | Ala | Leu | Ser | Ser | Gly | Ser | Ser | Lys | Pro | Arg |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Val | Ser | Ile | Pro | Met | Val | Arg | Ile | Leu | Ala | Pro | Val | Leu | Val | Leu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |  |
| Leu | Ser | Leu | Leu | Ser | Ala | Ala | Gly | Leu | Ile | Ala | Phe | Cys | Ser | His |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |  |
| Leu | Leu | Leu | Trp | Arg | Lys | Glu | Ala | Gln | Gln | Ala | Thr | Glu | Thr | Gln |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |  |
| Arg | Asn | Glu | Lys | Phe | Trp | Leu | Ser | Arg | Leu | Thr | Ala | Glu | Glu | Lys |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |  |
| Glu | Ala | Pro | Ser | Gln | Ala | Pro | Glu | Gly | Asp | Val | Ile | Ser | Met | Pro |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |  |
| Pro | Leu | His | Thr | Ser | Glu | Glu | Glu | Leu | Gly | Phe | Ser | Lys | Phe | Val |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |  |

Ser Ala

<210> 518

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 518

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<210> 519

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 519

ctgtcttccc ctgcttggct gtgg 24

<210> 520

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 520

ggtgcaggaa ggggtgggatc ctcttctctc gctgctctgg ccacatc 47

<210> 521

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 521

ccagtgcaca gcaggcaacg aagc 24

<210> 522

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 522

actaggctgt atgcctgggt gggc 24

<210> 523

<211> 43

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<210> 524

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 524  
aatctcagca ccagccactc agagca 26

<210> 525  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 525  
gttaaagagg gtgcccttcc agcga 25

<210> 526  
<211> 24  
<212> DNA  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 526  
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<210> 527  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 527  
gatgaacttg gcgaaggggc ggca 24

<210> 528  
<211> 30  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 528  
agggaggatt atccttgacc tttgaagacc 30

<210> 529  
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<212> DNA  
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